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National Animal Health Emergency Management System Guidelines

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Operational Guidelines

Quarantine and Movement Control: Highly Contagious Diseases

The National Animal Health Emergency Management System Guidelines provide an operational framework for use in dealing with an animal health emergency in the United States.

The guidelines are produced by the Veterinary Services Unit of the Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

These guidelines are under ongoing review. Please send questions or comments to:

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Preface

"Quarantine and Movement Control: Highly Contagious Diseases," a component of APHIS' National Animal Health Emergency Management System (NAHEMS) Guidelines series, is designed for use in the event of an outbreak of a highly contagious foreign animal disease in the United States. The NAHEMS guidelines provide information for use by any emergency animal disease eradication organization and for integration into the preparedness plans of other Federal agencies, State and local agencies, Tribal Nations, and additional groups involved in animal health emergency management activities.

Topics addressed in the NAHEMS guidelines include:

- Field investigations of animal health emergencies
- Disease control and eradication strategies and policies
- Operational procedures for disease control and eradication
- Site-specific emergency management strategies for various types of facilities
- Administrative and resource management
- Educational resources

The NAHEMS guidelines provide a foundation for coordinated national, regional, State, and local activities in an emergency situation. As such, they are meant to complement non-Federal preparedness activities. The guidelines are being reviewed and updated on an ongoing basis, and comments and suggestions are welcome.

"Quarantine and Movement Control: Highly Contagious Diseases" provides guidelines for Quarantine and Movement Control personnel and associated personnel responsible for regulatory enforcement activities during an outbreak of highly contagious disease. A companion document, "Quarantine and Movement Control: Nonhighly and Noncontagious Disease," is under development. The guidelines are meant for use as a practical guide rather than as a comprehensive reference resource.

The general principles provided in the guidelines are intended to serve as a basis for making sound decisions. However, deviations from the guidelines may be permissible, if necessary, to address a given situation effectively. In addition, information provided in various sections may need to be combined to meet the requirements of a particular situation.

Acknowledgments

"Quarantine and Movement Control: Highly Contagious Diseases" reflects the efforts of a number of individuals, including an APHIS Veterinary Services (VS) Writing Group, additional APHIS staff members, and a wide range of reviewers. The reviewers include Federal and State Veterinarians, members of APHIS' animal health emergency response teams, officials of other Federal agencies, representatives of industry, and additional experts.

Also acknowledged with appreciation are the efforts of USDA staff and external reviewers involved with the development of the VS animal health publications ("red books") and similar documents that have served as information sources for the NAHEMS guidelines. The contributions of each individual are appreciated.

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Introduction

The term “quarantine” is defined by Blood and Studdert as “restrictions placed on entering or leaving premises or regions where a case of communicable disease exists or is suspected.” During an outbreak of a highly contagious foreign animal disease (FAD), quarantine measures are put in place to prevent or mitigate the spread of disease pathogens. This serves to protect remaining agricultural resources in the areas near the infected premises as well as those of the larger community, State, region, and nation. If the FAD is zoonotic, the quarantine also protects the health and well-being of the public.

The term “movement control” refers to activities regulating the movement of people, animals, animal products, vehicles, and equipment subject to certain criteria. Movement control also involves the keeping of records on these movements as an important tool in the management of a disease outbreak.

Quarantine and movement control are effective methods for preventing the spread of agents causing most highly contagious, nonhighly contagious, and noncontagious (including vector-borne) disease. With respect to highly contagious disease, for example, judiciously used quarantine and movement control can stop the spread of disease pathogens by stopping the movement of infected animals, animal products, or fomites (e.g., vehicles, equipment, harnesses, bedding, and feces) that can convey disease-producing agents to susceptible animals. Similarly, with respect to vector-borne disease, quarantines are effective in preventing the movements of infected hosts—though quarantines, of course, cannot prevent the movement of highly mobile vectors such as mosquitoes.

This document describes the quarantine and movement control measures usually considered necessary during an animal disease emergency to prevent the spread of highly contagious FAD through the movement of live animals, animal products, or fomites. A companion document, “Quarantine and Movement Control: Nonhighly and Noncontagious Disease” (in progress), addresses other types of foreign animal disease, including vector-borne disease.

The measures summarized herein are designed to (a) keep disease agents out of livestock and poultry populations (e.g., herds, flocks, or other groups of animals) in which the agents do not already exist and (b) prevent the further spread of disease agents to uninfected groups in areas where disease exists. Also included is guidance for Quarantine and Movement Control Unit Leaders and associated personnel in relation to a range of disease eradication and control issues and considerations.

Highly Contagious FAD

For purposes of these guidelines, highly contagious FAD are defined operationally as the diseases designated as such by the Office International des Epizooties—an international animal health organization based in Paris, France. These diseases include:

- African swine fever
- Classical swine fever
- Foot-and-mouth disease
- Highly pathogenic avian influenza
- Exotic Newcastle disease
- Peste des petits ruminants
- Rinderpest
- Swine vesicular disease

Additional Resources

The guidelines are designed for use as a practical field resource rather than as a comprehensive reference work. Additional information on quarantine and movement control may be obtained from sources such as:

- *The APHIS home page (www.aphis.usda.gov).* Examples of informational resources include the APHIS factsheets "Disease Prevention Guidelines for U.S. Livestock Shows, Agricultural Fairs, and Other Agricultural-Related Events" (www.aphis.usda.gov/oa/pubs/fsfmfair.html); "The New York Animal Import Center," which illustrates both the use of quarantines and the documentation of movement control through permits and records (www.aphis.usda.gov/oa/pubs/fsnyaic.html); and "Routine Biosecurity Measures for On-site Farm Visits or Other Livestock Concentration Points" and the APHIS "Safety and Health Manual," both of which are accessible at www.aphis.usda.gov. Another useful resource is APHIS' Centers for Epidemiology and Animal Health Web site (www.aphis.usda.gov/vs/ceah). (Perform a search using "quarantine" as a keyword.)

- *Other NAHEMS guidelines.* "Appraisal and Compensation," "Biosecurity," and "Disposal" are examples of NAHEMS documents that are in progress.

- *University Web sites.* For example, the University of Texas Web site provides access to quarantine laws and statutes in each of the 50 States. The site is accessible at www.utexas.edu; select "Libraries & Museums" and "Tarlton Law Library" and then enter "livestock quarantines" in the search field.

- *International resources.* The Office International des Epizooties (OIE), for example, issues the "International Animal Health Code," which is accessible on the OIE Web site (www.oie.int). To access information on quarantine and movement control on the OIE Web site, select "World Organisation for Animal Health" and "Data on Animal Diseases" and then perform a search using "International Animal Health Code" as keywords.

This document focuses on essential areas of quarantine and movement control such as the responsibilities of Quarantine and Movement Control Unit personnel; considerations in placing and lifting quarantines; creating a Control Area and various types of zones; operating quarantine checkpoints; and establishing a permit system for the movement of animals and animal products.

The guidelines are designed for use not only in emergency situations but also in animal health emergency training programs. A brief overview of key elements of such programs is provided below.

Emergency Response Exercises

Well before an animal health emergency strikes, Quarantine and Movement Control personnel should use "Quarantine and Movement Control: Highly Contagious Diseases" in emergency response exercises designed to help them expand their knowledge of animal health emergency management. Such sessions will help learners identify likely emergency scenarios and develop detailed plans for responding to each scenario effectively.

The First 24 Hours—In using test exercises to prepare for a disease outbreak, responses during the initial 24 hours should be considered critical. A useful assignment challenges participants to create a detailed plan for the application of information contained in "Quarantine and Movement Control: Highly Contagious Diseases" during the first 24 hours of an animal health emergency involving a confirmed disease.

Participants can use information in the guidelines to answer questions such as:

- What actions will need to be taken immediately? If these actions are not taken, what consequences are likely?

- What relationships with other key personnel, including individuals in the emergency management community, should be in place prior to the emergency?

- To what degree will the application of quarantines disrupt the agricultural community? How can the effects of such disruptions be minimized?

- To what degree will the application of quarantines disrupt the community at large? How can the effects of such disruptions be minimized?

- What movements of people, animals, animal products, vehicles, equipment, and other materials should be controlled by a permit system? How will the permit system be implemented?

- What obstacles may appear, and how will they be overcome?

- What conflicting pressures are likely, and how will they be balanced?

- What key information and resources (e.g., equipment and supplies) need to be readily available, and where and how will they be obtained, stored, and accessed?

- If an initial plan fails, what are the elements of an effective alternative plan?

Evaluation—The evaluation phase of exercises will provide participants with the opportunity to (a) evaluate the strengths and weaknesses of their responses in the simulation exercises and (b) focus on ways to improve their response capabilities in the event of an actual animal health emergency. The exercises also will underscore the need for participants to develop and maintain strong collaborative relationships in the emergency management community.

Interagency Outreach

If the presence of an FAD or arthropod vector or other type of animal health emergency is identified in the United States, the appropriate local, State, and Federal Governments and their partners in the private sector (e.g., industry and academia) must respond in a coordinated, mutually supportive manner to (a) determine the nature of the outbreak, (b) initiate an appropriate response, (c) eliminate or control the disease, and (d) help facilitate recovery (e.g., resumption of trade). The NAHEMS guidelines are designed for use at any of three levels of response commensurate with the severity of the outbreak.

These levels include:

- *A local/limited response.* This level of response is managed by local, State, Federal, and industry officials, with response coordination provided primarily at the State and regional levels and with national-level consultation and consequence management (e.g., trade issues).

- *A regional response.* A regional response is managed by local, State, Federal, and industry officials—in some cases, with the involvement of the appropriate State emergency management agency as specified in State animal health emergency

response plans. National-level crisis management, response coordination, consultation, and consequence management are required.

- *A national response.* This level of response requires the combined efforts of local, State, Federal, and industry agricultural officials as well as nonagricultural personnel from Government (e.g., the Federal Emergency Management Agency) and the private sector in national-level crisis management, response coordination, consultation, and consequence management.

Regardless of response level, the agricultural community must be prepared to work closely with the emergency management community to deal with an animal health emergency. The State-based, nationally coordinated Animal Emergency Response Organization (AERO) model addresses this need.

The AERO model is based on the Incident Command System (ICS), an emergency response approach used widely in the emergency management community. To promote the widest possible application of guidelines content throughout the agricultural and emergency management communities, this publication refers to the titles of officials and groups in terms of the AERO/ICS model. It is hoped that this approach will help the reader understand essential aspects of animal emergency response activities in terms of the model.

Responsibilities of Quarantine and Movement Control Personnel

Quarantine and Movement Control personnel provide quarantine and movement control services that are essential to the control and eradication of a highly contagious foreign animal disease. Quarantines are used to stop all movement when necessary, whereas movement controls allow for certain movements under appropriate supervision (e.g., under permit) if such movements can occur with little or no risk of pathogen transmission. In either case, the effectiveness of AERO personnel in regulating movement is essential to a successful animal health emergency response.

The Quarantine and Movement Control Unit, which is located within the AERO Operations Section, works closely with other units to ensure a smoothly functioning operation (see Figure 1).

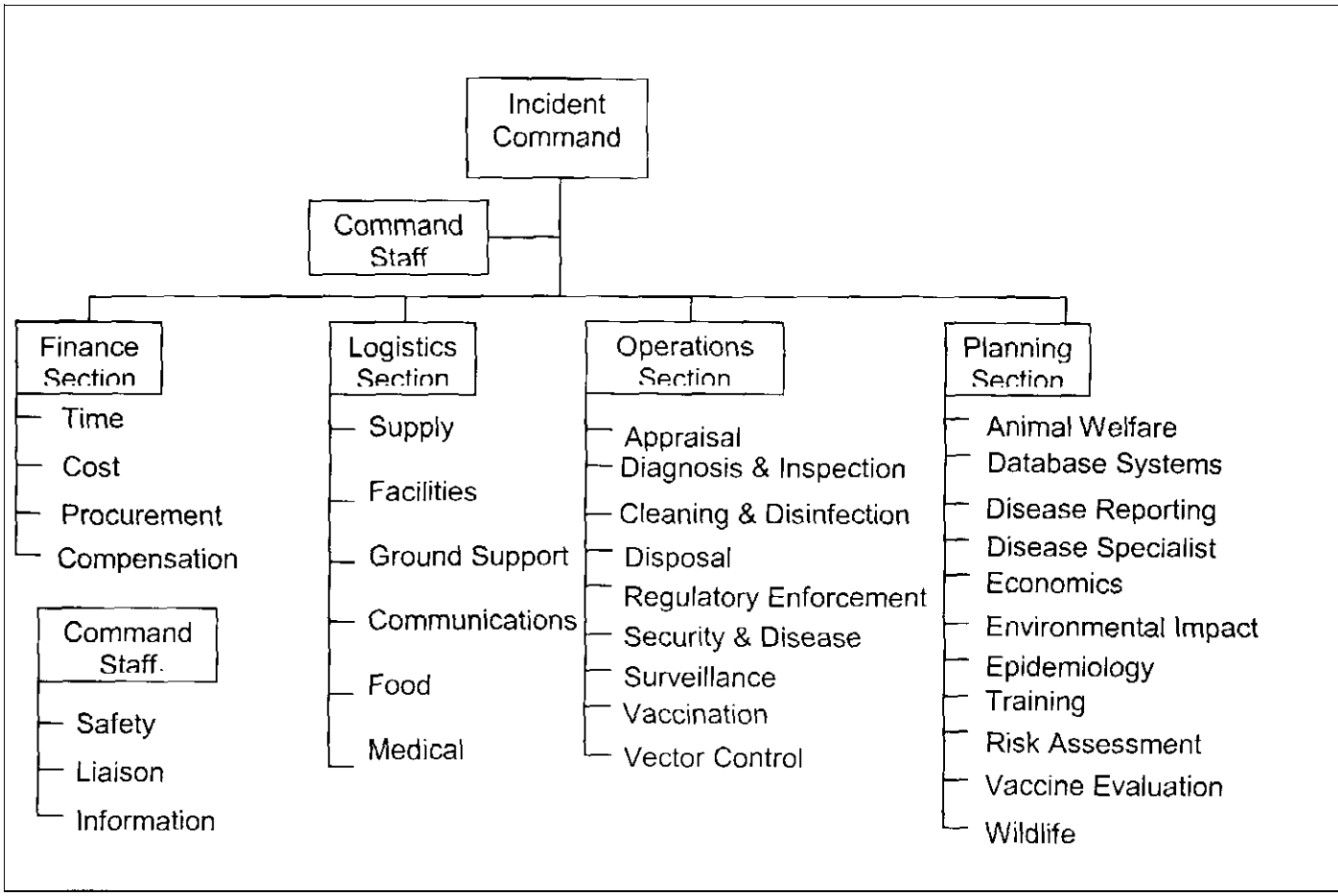

Figure 1. Typical Animal Emergency Response Organization.

The Quarantine and Movement Control Unit:

- Provides advice and recommendations to the Incident Commander(s) (Incident Command) and general staff in the planning of premises, area, State, and Federal quarantines.

- Notifies owners or operators of Infected or Contact (potentially exposed) Premises of the placement of premises quarantines on their property.

- Coordinates closely with the Biosecurity Unit to ensure that biosecurity measures associated with area and premises quarantines are enforced strictly.

- Provides advice and recommendations to Incident Command and general staff on the formulation of rules for permits and allowable movements.

- Issues permits to provide movement control vis-a-vis allowable movements of animals, animal products, vehicles, equipment, and other materials.

- Provides personnel to supervise quarantine checkpoints.

- Performs other services as appropriate.

Key Personnel

Key Quarantine and Movement Control Unit personnel include:

- The Quarantine and Movement Control Unit Leader, who is based at the Incident Command Post and who plans and conducts quarantine and movement control activities in consultation with the Operations Section Chief (to whom he or she reports) and Incident Command.

- Quarantine and Movement Control Team Managers, each of whom reports to the Quarantine and Movement Control Unit Leader and heads a Quarantine and Movement Control Team (e.g., a Premises Quarantine Team, a Quarantine Checkpoint Team, or the Permit Team).

- Quarantine and Movement Control Team Members, made up of Quarantine and Movement Control Unit Members who function in various field capacities throughout the affected area (e.g., by serving on a Premises Quarantine Team, a Quarantine Checkpoint Team, or the Permit Team) and report to their respective Team Managers.

Quarantine and Movement Control Teams

Most Quarantine and Movement Control personnel serve on a Premises Quarantine Team, a Quarantine Checkpoint Team, or the Permit Team, as follows:

- *Premises Quarantine Team.* Each Premises Quarantine Team is responsible for ensuring compliance with quarantine orders and movement control measures on one or more premises (e.g., several small contiguous premises). Team members typically work closely with Biosecurity Team members to establish a premises security system; develop a list of all people, animals, vehicles, and equipment authorized to enter or leave the property; enforce resultant movement restrictions; and establish, maintain, and check a log to ensure that each movement on or off a premises is authorized. The Premises Quarantine Team, which is led by a Quarantine and Movement Control Team Manager (see below), may vary in size from one to several individuals, depending on the requirements of the situation and on personnel availability.

- *Quarantine Checkpoint Team.* The Quarantine Checkpoint Team is charged with staffing and supervising roadside checkpoints in cooperation with local law enforcement officials. The Team also is responsible for helping to ensure compliance with the permit system devised to allow the safe inter- and intrastate movement of animals, animal products, vehicles, equipment, and other materials. Each Quarantine Checkpoint Team is responsible for staffing a roadside quarantine checkpoint and for interacting with drivers entering these checkpoints. The team, led by a Quarantine and Movement Control Team Manager, may vary in size according to the quantity of traffic encountered and on personnel availability, though each team usually consists of at least two individuals. (For further information on the Quarantine Checkpoint Team's responsibilities, see the discussion of quarantine checkpoints later in these guidelines.)

- *Permit Team.* The Permit Team is responsible for helping to ensure compliance with the permit system devised to allow the biosecure inter- and intrastate movement of animals, animal products, vehicles, equipment, and other materials. A single Permit Team usually is sufficient even in a major disease outbreak, as the team can range from a few to a dozen or more individuals as necessary. Typical tasks include faxing permit applications and forms to callers upon request; evaluating permit applications; and issuing and closing out permits. Permit Team members also are responsible for contacting community officials, public utility companies, schools, and other businesses such as mail and package delivery services to request their cooperation with quarantines and movement controls. The Permit Team, which is led by a Quarantine and Movement Control Team Manager with knowledge and experience in biosecurity, works in an office that is near Incident Command headquarters but that ideally has its own telephones and fax machines for the sake of efficient communication (e.g., so the public can call the Permit Team directly rather than being routed through the

AERO headquarters office). To ensure that the team has ready access to technical information about disease and biosecurity issues, a veterinarian or other individual with background and experience in biosecurity issues should be appointed as the Team Manager. Local veterinarians, with their knowledge of the community, also can serve as valuable team members.

All Quarantine and Movement Control personnel should learn as much as possible about the procedures discussed in these guidelines and in other information sources. They also should participate in educational sessions and emergency response exercises designed to help them expand their knowledge of and expertise in animal health emergency management. The responsibilities of Quarantine and Movement Control personnel are summarized in greater detail below.

The Quarantine and Movement Control Unit Leader

The Quarantine and Movement Control Unit Leader should be an individual with background and experience in quarantine, movement control, and biosecurity issues. This person is responsible for ensuring that quarantine and movement control measures are implemented effectively during an animal disease outbreak or other animal emergency (e.g., a natural disaster). The goal of such measures is to prevent a disease agent from moving off infected premises onto an uninfected premises and/or moving from infected animals to uninfected animals on the same premises.

Ensuring Understanding of Pathogen Transmission—The Quarantine and Movement Control Unit Leader must ensure that all Quarantine and Movement Control Unit personnel and associated workers are familiar with direct (including arthropod-borne) and indirect mechanisms of pathogen transmission. They must understand that pathogen transmission to susceptible species (including humans, in the case of zoonoses) may occur:

- Directly, via animal contact with an infected animal or infected animal products, including blood; secretions (e.g., milk and saliva); excretions (e.g., manure and urine); epidermal outgrowths (e.g., feathers, hair, wool, horns, and hooves); and breath, or via arthropod vectors (e.g., insects and ticks) that may serve either as mechanical carriers of a disease agent or as an important part of the life cycle of the agent (e.g., mosquitoes that carry the Rift Valley fever agent).

- Indirectly, via animal contact with contaminated feed, water, fomites, animals (e.g., roaming and scavenging wildlife—including vermin and dogs—on the premises and surrounding areas), or people that are contaminated but not infected or susceptible. Fomites may include clothing, tools, equipment, vehicles, bedding, and other inanimate objects. (The wind, which is often blamed for pathogen transmission, is most likely responsible only for moving potential fomites such as dust, bedding, feathers, and other light objects.)

In addition, Quarantine and Movement Control personnel must understand the quarantine and movement control activities used to manage or eliminate each of these means of pathogen transmission.

General Responsibilities—The Quarantine and Movement Control Unit Leader should be identified well before a disease outbreak or other animal health emergency occurs. This individual:

- Ensures that up-to-date contact information is maintained on personnel who are willing and qualified to serve as Quarantine and Movement Control Unit Team Managers and Team Members, including names; home, business, and express mail addresses; e-mail addresses; cell, office, pager, and home telephone numbers; and fax numbers.

- Maintains a working knowledge of State and Federal regulations pertaining to the movement, quarantine, and depopulation (euthanasia and disposal) of livestock and poultry and to effective ways of dealing with or disposing of infected or contact animal products in emergency animal disease situations.

- In consultation with Quarantine and Movement Control Team Managers, assigns personnel to Quarantine and Movement Control Teams (e.g., Premises Quarantine Teams, Quarantine Checkpoint Teams, or the Permit Team), organizing and dispatching the teams as necessary to achieve the goals specified by Incident Command.

- Supervises Quarantine and Movement Control Team Managers and other personnel assigned to the Quarantine and Movement Control Unit.

- Ensures that owners receive notices of quarantines, notices to depopulate animals, and other regulatory documents.

- Establishes and maintains permit systems.

- Establishes and maintains quarantine checkpoints as needed.

- Verifies the accuracy and completeness of all required reports and sees that they are submitted promptly for entry into the APHIS Emergency Management Response System or an agreed-upon alternative reporting system.

- Works with APHIS' Office of Investigative Services to put a system in place by which violations of regulations are discovered, evidence is gathered, and all necessary documents to assist in the prosecution of violators are prepared.

- Provides the AERO Information Officer with information on permit requirements, the permit application process, and all recordkeeping requirements so that this information can be distributed to affected industry groups and others.

- Determines the number and types of personnel, vehicles, and equipment needed to conduct Quarantine and Movement Control Unit operations and communicates with the Operations Section Chief to ensure the availability of these and other required resources.

- Identifies employees' personnel training requirements and orientation needs for duties within the Quarantine and Movement Control Unit.

- Ensures that employees are oriented (by the Safety Officer) to (a) on-the-job hazards and ways to avoid them and (b) their responsibilities concerning biosecurity procedures.

- Coordinates Quarantine and Movement Control Unit activities with the activities of personnel from other units (e.g., the Surveillance, Biosecurity, and Appraisal Units).

- Maintains working relationships with the designated law enforcement liaison assigned to Incident Command and with law enforcement officials (e.g., local police, sheriffs, and others) and requests assistance and advice from them as needed.

- In preparing documents, cooperates with and seeks advice from the Legal Advisor assigned to Incident Command.

- Prepares briefings and reports regularly for the Operations Section Chief and immediately notifies him or her of any issues or problems.

- Works closely with the Surveillance Team and Geographic Information System (GIS) group to prepare current maps of the Infected, Buffer-Surveillance, and Surveillance Zones.

- Directs and supervises activities designed for use in monitoring quarantines and movement control activities for compliance.

- Cooperates with local animal health emergency groups (e.g., State emergency management personnel) as appropriate.

The Quarantine and Movement Control Team Manager

A Quarantine and Movement Control Team Manager typically is given responsibility for supervision of one of the Quarantine and Movement Control Unit teams activated for an

animal health emergency (e.g., supervision of a Premises Quarantine Team, a Quarantine Checkpoint Team, or the Permit Team). Quarantine and Movement Control Team Managers should have background and experience in biosecurity issues.

In general, the Quarantine and Movement Control Team Manager:

- Ensures that Quarantine and Movement Control Team Members' duties are explained to them and that they are trained in Quarantine and Movement Control Unit policies and procedures.

- Assigns tasks (e.g., premises quarantine services, checkpoint operation activities, or permit application evaluation) to Quarantine and Movement Control Team Members and supervises their work.

- Determines the personnel, vehicles, and equipment and other resources needed by his/her team to operate Quarantine and Movement Control Unit activities efficiently.

- Serves as a liaison between AERO and the premises owner or manager on all questions related to quarantine and movement control (e.g., creation and maintenance of movement control records, issuance of permits, and communication required to close out permits).

- In cooperation with the Biosecurity Team Manager, leads teams in implementing quarantine and movement control measures for all animals, animal products, vehicles, equipment, and other materials entering or leaving Infected, Contact, or Suspect premises until such time as restrictions on the premises are lifted.

- Helps the Quarantine and Movement Control Unit Leader decide where to establish logistically manageable quarantine checkpoints.

- Provides complete data and sound advice to appropriate officials to secure support and acceptance of quarantine and movement control (e.g., permit) procedures.

- Stays current on information and knowledge concerning disease prevention principles and practices.

- Prepares briefings and reports for the Quarantine and Movement Control Unit Leader and notifies him or her immediately of any issues or problems.

Managing a Premises Quarantine Team—The Quarantine and Movement Control Team Manager assigned to manage a Premises Quarantine Team:

- Ensures that the Premises Quarantine Team is staffed adequately.

- Leads the team in working cooperatively with the Biosecurity Unit, including (a) serving as liaison with the Biosecurity Team Member assigned to establish a premises security system or to serve as permanent guard and (b) helping develop a list of all people (e.g., neighbors, members of the communications media, or livestock dealers), animals, vehicles, equipment, and other materials that are authorized to enter or leave the property.

- In consultation with the Biosecurity Team Manager, ensures compliance with the permit system devised by personnel from the Permit Team to allow the safe inter- and intrastate movement of animals, animal products, vehicles, equipment, and other materials.

- Coordinates with the Biosecurity Unit in establishing and monitoring a log of all people, animals, animal products, vehicles, equipment, and other materials entering and leaving each infected premises to ensure that each movement is authorized.

Managing a Quarantine Checkpoint Team—The Quarantine and Movement Control Team Manager assigned to manage a Quarantine Checkpoint Team:

- Ensures that quarantine checkpoints are staffed adequately.

- Serves as liaison with local law enforcement.

- Encourages Team Members to use optimal interpersonal skills in dealing with the public.

- In consultation with the Quarantine and Movement Control Unit Leader, develops informational material to be handed to the drivers at quarantine checkpoints, ensuring that the information is clear, accurate, and complete.

Managing the Permit Team—The Quarantine and Movement Control Team Manager assigned to manage the Permit Team:

- Ensures that the Permit Team is staffed adequately.

- Ensures that office space—located near Incident Command System headquarters, but ideally equipped with a separate telephone and fax machine system—is available for the Team's use.

- Ensures that permit applications are handled properly and expeditiously and that team members have the necessary skills (e.g., using the GlobaI Positioning System to determine the proximity of a permit applicant's premises to an Infected, Contact, or Suspect Premises so that the applications can be evaluated wisely).

- Advises Permit Team Members as necessary on the merits of individual permit applications.

- Ensures that permit close-outs are handled properly.

- Ensures that Permit Team personnel contact community officials, schools, public utility companies, and other businesses such as mail and package delivery services to inform them of the risks inherent in visits by any of their personnel to premises with susceptible species in the Infected Zone and to request their cooperation and support. (In each case, the Permit Team member making the call should ask to speak with a responsible official.)

- Ensures that the required permit permission/denial data are collected and reported to the Emergency Management Response System or other acceptable reporting system accurately and promptly.

The Quarantine and Movement Control Team Member

Quarantine and Movement Control Team Members function in various field capacities throughout an affected area. Quarantine and Movement Control Unit personnel may be drawn from a number of resources, such as:

- *APHIS.* A number of personnel from APHIS' Investigation and Enforcement Service, for example, have training and experience in enforcement activities.

- *The military.* Under certain conditions, Department of Defense personnel (e.g., the National Guard) may be available to USDA through interdepartmental memoranda of understanding.

- *Government.* Personnel from a variety of departments within State Government, local law enforcement groups, and public safety agencies have received specialized training as first responders. Federal resources (e.g., the services of USDA's Office of the Inspector General) also are available as appropriate. Further information on such resources is available from USDA's Office of the Inspector General and APHIS' Investigation and Enforcement Service (www.aphis.usda.gov).

- *Local sources.* Local security agencies, for example, may be able to supply personnel on contract for patrol or guard activities during a disease outbreak or other animal health emergency.

Hazard Communication

All members of the Quarantine and Movement Control Unit should receive a complete orientation covering the various hazards that may be encountered while serving during a disease outbreak or other animal health emergency. Although Quarantine and Movement Control personnel typically will not enter quarantined premises on a regular basis (unless they are serving on a Premises Quarantine Team), the nature of their work requires that they be prepared to go anywhere necessary to interview people involved in the movement of people, animals, animal products, vehicles, equipment, or other materials.

Before any regulatory work is initiated, Quarantine and Movement Control Unit personnel should be briefed fully by Training Unit personnel (see the NAHEMS "Roles and Responsibilities" guidelines, in progress) as to the nature of the disease with which they are dealing. If the need to enter a quarantined premises arises, Quarantine and Movement Control Unit personnel should consult with the Biosecurity Team Member in charge of the premises to ensure complete compliance with biosecurity measures. Biosecurity Team Members should be prepared to coordinate closely with teams from other AERO units that may visit the premises.

Before entering a premises, each Quarantine and Movement Control Team Member should gain a complete understanding of all necessary safety precautions and hygiene requirements. This is particularly important if a zoonotic disease is involved.

In addition, team members should be supplied with all necessary protective equipment. Respirators, gloves, and eye protection, for example, must be supplied if the personnel are at risk from a disease organism or chemical hazard, if significant amounts of dust are generated, or upon individual request. (For further information, see APHIS' "Safety and Health Manual," including the APHIS Respirator Program Guidelines in Chapter 11, Section 3.)

Personnel Orientation Factsheets

Certain sections of this document may be especially relevant to the responsibilities of individual Quarantine and Movement Control Unit personnel. The Quarantine and Movement Control Unit Leader may wish to distribute one-page or two-page laminated factsheets on various responsibilities or tasks to these individuals.

For a sample factsheet, see "Biosecurity DOs and DON'Ts" (Appendix I). Other useful factsheets covering various aspects of disease, quarantine, and cleaning and disinfection are available on the APHIS Web site (www.aphis.usda.gov).

Assessing Needs

Needs for personnel, vehicles, and equipment for the Quarantine and Movement Control Unit will be determined at the time of an animal health emergency by the Quarantine and

Movement Control Unit Leader in consultation with Quarantine and Movement Control Team Managers. The Quarantine and Movement Control Unit Leader should work with State emergency management agencies to identify Quarantine and Movement Control Team Members with required expertise from multiple Governmental and private sources.

The Quarantine and Movement Control Unit Leader should advise the Operations Section Chief of any personnel requirements that cannot be satisfied locally so that arrangements for additional personnel can be made. The Quarantine and Movement Control Unit Leader also will work with appropriate officials to issue contracts and leases concerning needed personnel or equipment.

Quarantine: General Considerations

In the event of an outbreak of a highly contagious FAD in the United States, quarantine and movement control can serve as powerful tools to slow the spread of pathogen transmission and eradicate the disease. This chapter focuses on general aspects of quarantine, including Government quarantine powers; quarantines of areas or States; premises quarantine and movement control; making premises, control area, and zone designations; securing a quarantined premises; and movement after controls are instituted. Also considered are quarantine checkpoints; planning for quarantine release; lifting a quarantine on a Contact or Suspect Premises; coordination of quarantine placement and release with other Areas or States; and legal issues related to quarantine and movement control.

AERO personnel dealing with quarantine and movement control should make a point of staying well informed on the State laws and State Governmental infrastructure with which they must deal in this aspect of animal health emergency response. Such laws and Governmental authorities differ from State to State. Some States, for example, permit placement of a quarantine only if a positive case of an FAD has been confirmed, whereas other States permit quarantine placement on the basis of a "presumptive positive" diagnosis pending laboratory confirmation.

Government Quarantine Powers

State officials, in consultation with USDA/APHIS officials, should take the lead in dealing with an outbreak of a highly contagious FAD within their borders. Only if the States are unable or unwilling to take the measures necessary to deal successfully with the outbreak should Federal involvement become necessary, though in any event Federal officials should be kept fully informed. Discussed below are State and Federal quarantines, Federal-State cooperation, the emergency transfer of funds, and the Declaration of Extraordinary Emergency as well as the laws on which they are based.

State and Federal Quarantines—Generally, State quarantines are placed on individual herds, flocks, or premises when an FAD is suspected. In the event of an outbreak of a highly contagious FAD, Federal regulatory officials have the authority to place quarantines or "hold orders" (i.e., orders to prevent the dissemination of a pest or disease) under the Animal Health Protection Act of May 13, 2002, as set forth in Title 7 of the United States Code (U.S.C.), Sections 8301-8317.

In the absence of a declared Extraordinary Emergency, Federal quarantines are used to control *interstate* and *international* movement of diseased animals and contaminated items, whereas State quarantines are used to control *intrastate* movements of such animals and items.

Federal Empowerment Under the Animal Health Protection Act—Under Section 10406 of the Animal Health Protection Act (7 U.S.C. 8305), the Secretary of Agriculture is given authority to "prohibit or restrict (1) the movement in interstate commerce of any animal, article or means of conveyance if…necessary to prevent the introduction or dissemination of any pest or disease of livestock" and (2) "the use of any means of conveyance or facility in connection with the movement in interstate commerce of any animal or article if…necessary to prevent the introduction or dissemination of any pest or disease of livestock."

Under Section 10407 of the Animal Health Protection Act (7 U.S.C. 8306), the Secretary also is empowered to "hold, seize, quarantine, treat, destroy, dispose of, or take other remedial action with respect to (1) any animal or progeny of any animal, article, or means of conveyance that (A) is moving or has been moved in interstate commerce or has been imported and entered; and (B) the Secretary has reason to believe may carry, may have carried, or may have been affected with or exposed to any pest or disease of livestock at the time of movement or that is otherwise in violation of this subtitle;" (2) any animal…, article, or means of conveyance that is moving or is being handled, or has moved or has been handled, in interstate commerce in violation of this subtitle; (3) any animal…, article, or means of conveyance that has been imported, and is moving or is being handled or has moved or has been handled, in violation of this subtitle; or (4) any animal…, article, or means of conveyance that the Secretary finds is not being maintained, or has not been maintained, in accordance with any post-importation quarantine, post-importation condition, post-movement quarantine, or post-movement condition in accordance with this subtitle" (Section 10407).

Federal-State Cooperation—According to the Animal Health Protection Act, the Federal Government can cooperate with the States as appropriate to:

- Identify livestock (which, as defined by the Act, includes poultry) infected with or exposed to an emergency disease.
- Seize, quarantine, and depopulate such animals and dispose of contaminated items.
- Control intrastate (within-State) movement.
- Otherwise carry out provisions of the law.

States and Tribal Nations use State or Tribal Nation authority to carry out operations or implement measures within their respective jurisdictions.

Transfer of Funds for an Emergency—In connection with an emergency under which a pest or disease of livestock threatens any segment of agricultural production in the United States, the Secretary of Agriculture has authority under Section 10417 of the Animal Health Protection Act of May 13, 2002 (7 U.S.C. 8316), to transfer from other appropriations or funds available to the agencies or corporations of the Department such

funds as the Secretary determines are necessary for the arrest, control, eradication, or prevention of the spread of the pest or disease of livestock and for related expenses. This transfer of funds enables APHIS officials to obligate these funds for disease control and eradication activities.

The regulations governing the payment of claims for animals and materials that are destroyed because of such diseases are set forth in Title 9, Parts 50 through 54, of the Code of Federal Regulations.

Declaration of an Extraordinary Emergency—Section 10407 of the Animal Health Protection Act, as set forth in 7 U.S.C. 8306, authorizes the Secretary of Agriculture to declare an Extraordinary Emergency when adequate measures to control a disease are not being taken by the State involved. In general, the Secretary must notify the appropriate official of the State involved before any action is taken under an Extraordinary Emergency and must issue a public announcement of the proposed action in the Federal Register.

When an Extraordinary Emergency is declared, the Secretary is authorized to seize, quarantine, and dispose of animals, even if the animals are not involved in interstate movements, if the animals threaten the livestock or poultry industries of the United States. Under 7 U.S.C. 8307, representatives of the Secretary, when properly identified, are authorized to stop and inspect—without a warrant—means of conveyance under certain circumstances and to enter upon premises with a warrant under certain circumstances.

Only a Declaration of Extraordinary Emergency by the Secretary of Agriculture will provide Federal officials with the authority to control livestock (including poultry) movements *within* a State. However, in the absence of a Declaration of Extraordinary Emergency, both Federal and State quarantines may be put into effect simultaneously, thus ensuring that livestock movements are controlled both within and between States. Considerable disease control activity typically occurs before a Federal Declaration of Extraordinary Emergency is made.

Quarantines of Areas or States

Upon the announcement of a presumptive positive case of an FAD—especially a highly contagious FAD such as foot-and-mouth disease—in the United States, the placement of quarantines and animal movement controls will become critical to the disease eradication and control effort. As discussed below, such an outbreak will have an immediate impact on animal movements, given the comprehensive infrastructure of intrastate and interstate animal shipments on which American livestock and poultry production depends.

Initial Movement Restrictions—Swift action in the 72 hours following announcement of a diagnosis of an FAD is critical to the effectiveness of disease eradication and control efforts. Ideally, a Control Area, which consists of an Infected Zone and a Buffer-

Surveillance Zone, should be established within 12 hours of a confirmed or presumptive positive case.

Initial movement restrictions on animals and animal products after the announcement of a presumptive positive case of an FAD and/or the declaration of an Extraordinary Emergency by the Secretary of Agriculture may involve the following considerations:

- A Buffer-Surveillance Zone should be established, surrounding the Infected Zone and consisting of part or all of one or more affected or potentially affected States—or, if necessary, the entire nation.

- In-transit shipments of susceptible animals and/or products derived from susceptible animals should be permitted to reach a secure destination—either the final destination or the point of origin, whichever is closer. The animals then should be placed under surveillance. The animal products should be tested for the presence of FAD pathogens and—if positive results are obtained—appraised, destroyed, and disposed of safely. (See the NAHEMS guidelines, "Appraisal and Compensation," "Euthanasia," and "Disposal," in progress.)

- No shipment of susceptible animals or products derived from susceptible animals should be initiated within the 72 hours following announcement of the first confirmed positive case of a highly contagious FAD in the United States.

- Any State officials finding that susceptible animals or animal products within the State's borders are in transit from a confirmed positive premises—or traced from such a premises—should see that the animals and/or animal products are appraised, destroyed, and disposed of according to the regulations of the State.

Highly Contagious Diseases—If a highly contagious disease such as foot-and-mouth disease is found within a State's borders, the State initially should be quarantined in its entirety. If the disease site is near (i.e., within 50 miles of) a State border, the adjacent State(s) should be quarantined as well.

In the case of foot-and-mouth disease, institution of movement controls—also known as "stop movement" measures—well might be made on a nationwide basis because of the disease's extreme contagiousness. Failure to stop the movement of infected or exposed animals immediately could result in the extensive spread of the disease agent in a very short time. A national response in such a situation probably would require the combined efforts of local, State, Federal, and industry agricultural officials as well as nonagricultural personnel from Government and the private sector in national-level crisis management, response coordination, consultation, and consequence management.

Premises Quarantine and Movement Control

Typically, under State law, the State can place an immediate quarantine or hold order on a premises at the request of a foreign animal disease diagnostician (FADD) if the FADD has conducted an investigation and the presence of an FAD appears highly likely. The term "highly likely" often is used in connection with a disease incident characterized by significant herd or flock involvement, clinical signs compatible with those of an FAD, and the existence of an additional significant epidemiological fact such as recent additions to the herd or flock.

Initially, the quarantine or hold order can take the form of a verbal quarantine if the FADD conducting the investigation does not have quarantine forms. As soon as a written quarantine order can be written and signed, it should be presented to the owner or manager of the premises by a regulatory officer or other official as required by the laws of the State involved.

Notifying State and Federal Officials—The State Veterinarian and Federal Area Veterinarian in Charge should be notified immediately of either a verbal or written quarantine. They also should be made aware of any support that may be necessary from outside the premises to (a) enforce the quarantine and (b) begin disease control and eradication operations on the premises.

Enlisting Local Law Enforcement—Some States have the authority to enlist local law enforcement to help maintain and enforce a State-ordered quarantine.

Making Premises Designations

To assist in making premises designations, the Incident Commander may wish to appoint and convene an internal staff advisory group. This group, typically drawn from the membership of the Planning and Operations Sections, makes recommendations as to these designations based on epidemiological and other information. The advisory group may recommend that a premises be designated as an Infected, Contact, or Suspect Premises (see below) or that it remain in a nonregulated status.

In determining appropriate premises designations, the advisory group typically will evaluate a premises according to the presence of one or more animals meeting the criteria for one of the following case identification terms:

- *Suspect case*—An animal that has clinical signs consistent with an FAD/emerging disease incident (EDI).

- *Presumptive positive (index) case*—An animal that has clinical signs consistent with an FAD/EDI in addition to (a) a positive laboratory result and (b) additional epidemiologic information indicative of an FAD/EDI.

- *Confirmed positive case*—An animal with a disease agent that has been isolated and identified in a USDA laboratory or other laboratory designated by the Secretary of Agriculture.

In addition, the group typically will review aspects of the situation such as:

- The recent history of a premises related to pathogen transmission. Information from movement control records and other records may be helpful.

- Observations and notes from the FADD concerning diagnostic visits. In some cases, it may be helpful to ask the FADD to consult with the group in person or by conference call.

- The results of laboratory analysis of all samples taken on a premises.

Final decisions on premises designations will be made by the Incident Commander(s).

Infected Premises—The declaration of a premises as an Infected Premises requires careful consideration in that the designation has legal as well as operational implications. **(**A premises declared infected, for example, would be quarantined immediately.) The animals on an Infected Premises are considered exposed to disease pathogens and will be subjected to applicable disease control measures—usually depopulation.

An Infected Premises may be related to Contact and Suspect Premises by the movements of people, animals, animal products, vehicles, equipment, or other materials. As soon a premises is designated an Infected Premises, officials immediately should quarantine it and establish an Infected Zone and Buffer-Surveillance Zone around it.

Contact Premises—A Contact Premises is a premises that is related to known Infected Premises by sound epidemiological evidence but on which the disease of concern has not been diagnosed. The animals on a Contact Premises have been exposed directly or indirectly to infected animals and/or contaminated objects and will be subjected to applicable disease control measures that may include depopulation.

A premises should be designated as a Contact Premises under the following circumstances:

- Animals are separated from infected animals only by a fence.

- The premises has received animals shipped directly from an Infected Premises.

- Animals have had direct contact with people who have handled infected animals and who did not subsequently decontaminate themselves and their vehicles via rigorous cleaning and disinfection procedures and other biosecurity measures.

- Animals have had direct contact with products or materials exposed to infected animals.

- The premises has been traveled by one or more vehicles (e.g., a milk truck, a veterinarian's vehicle, a feed truck, or a renderer's truck) that previously have traveled on Infected Premises without implementation of proper cleaning and disinfection procedures and other biosecurity measures**.**

A Contact Premises may be related to an Infected Premises by the movements of people, animals, animal products, vehicles, equipment, or other materials. As soon as a premises is identified as a Contact Premises, officials should quarantine it immediately and establish an Infected Zone and Buffer-Surveillance Zone around it.

Each Contact Premises must be evaluated fully before animals or animal products are allowed to be moved from it. Such an evaluation must include the establishment—as closely as possible—of the date of entry of disease onto the Infected Premises that is related to the Contact Premises being evaluated.

Specifically, the evaluation should take into account all movements onto or from the Contact Premises that have occurred during two incubation periods (as defined by OIE), before or after the date of entry of disease onto the Infected Premises. An incubation period is defined by OIE as the longest period that elapses between the introduction of a pathogen into an animal and the occurrence of the first clinical signs of disease. For a list of incubation periods for OIE List A diseases, see Appendix II. In addition, incubation periods for both OIE List A and List B diseases are available on the OIE Web site (www.oie.int).

The animals on a Contact Premises should be observed for clinical signs of disease for a period of time equaling at least three incubation periods of the disease in question. For example, if the disease of concern is foot-and-mouth disease—which has an incubation period of 14 days—the animals should be observed for 42 days (or longer, if neighboring premises still are becoming infected at the end of this time).

Suspect Premises—A Suspect Premises is a premises on which it is reasonable to believe that some exposure to an FAD, especially a highly contagious FAD, may have occurred. Typically, a Suspect Premises (a) has susceptible animals that are under investigation for a report of clinical FAD signs, but has no apparent epidemiological link to an Infected Premises or Contact Premises or (b) lies within an Infected Zone, but has not been classified as an Infected Premises or a Contact Premises.

A Suspect Premises should be quarantined immediately until the nature and timing of possible disease exposure can be evaluated fully. The premises also should be the focus of intensive surveillance for a time period equal to three incubation periods of the disease of concern—or longer, if warranted by epidemiologic evidence.

If, at the end of the surveillance period, the animals remain free of the disease of concern, the premises will revert to a disease-negative status. However, the owners of animals on a Suspect Premises in an Infected Zone may choose to depopulate their animals rather than wait for the surveillance period to elapse if the owners determine that maintaining the animals is economically infeasible during this time period.

Making Control Area and Zone Designations

The designation of one or more Control Areas and various Zones is essential to successful quarantine and movement control activities. This section discusses the Control Area, the Infected Zone, the Buffer-Surveillance Zone, the Surveillance Zone, and the Free Zone.

Control Area—The Control Area consists of the Infected Zone and a Buffer-Surveillance Zone (see discussion below). A number of risk factors should be considered in deciding the size of the Control Area after an FAD has been confirmed. In some States, a quarantine may be instituted at the presumptive positive stage, before confirmative laboratory results have been received (see the NAHEMS "Response Strategies for Highly Contagious Diseases" guidelines, in progress).

Risk factors include:

- The infectivity of the disease agent.
- The animal density in the area where the outbreak has occurred.
- The premises contact rate (e.g., the frequency with which one or more premises comes into contact with animal shipments or vehicles from outside the premises).
- The frequency of animal movement in the area.
- The frequency of human movement in the area.
- The frequency of contact between wildlife and premises animals in the area.
- The disease's primary mode(s) of transmission.

Thus, in general, a larger Control Area is associated with factors such as higher disease agent infectivity, higher animal density in the outbreak area, a higher premises contact rate, greater frequency of animal and human movement, and greater frequency of contact between wildlife and premises animals in the outbreak area.

Infected Zone—In an outbreak, the Infected Zone initially will encompass the perimeter of all presumptive positive and confirmed positive premises and will include as many of the Contact Premises as the situation requires logistically or scientifically. The boundary of the Infected Zone initially should be established at least 10 kilometers (6.2 miles)

beyond the perimeters of the presumptive positive and confirmed positive premises. The boundaries of the Infected Zone will be modified (either expanded or reduced) as new information becomes available.

Global Positioning System information, gathered in the field, and Geographic Information System software can be used to map presumptive positive and confirmed positive premises. The Infected Zone then can be designated using these premises—plus a 10-kilometer "margin" between the premises and the zone boundary—as points defining the outer limits of a polygon-shaped zone boundary. The size and shape of the Infected Zone can be refined further according to the factors below. Additional zones also can be depicted.

The size and shape of the Infected Zone will depend on a number of factors, including:

- The type and known characteristics of the disease agent of concern.
- The mode by which the disease pathogens are transmitted.
- The species affected.
- The season of the year.
- The affected area's geography and terrain, livestock concentrations, weather conditions (e.g., prevailing winds), and types of farms (e.g., small family farms or large industrial production sites).
- Patterns of livestock movement in the area.
- The distribution and movement of susceptible wild and feral animals.
- Processing options for livestock and animal products. (The Infected Zone, for example, may be expanded to include a nearby rendering facility or other processing plant so that infected animals and/or products can be processed inside the Zone.)
- The need to minimize any potentially disruptive effects upon the movements of commodities that pose little or no risk to the spread of the disease pathogen of concern.

Further adjustments to the Infected Zone's borders can be made as more information (e.g., results of tracing and surveillance activities) becomes available and wildlife distributions are better defined.

Buffer-Surveillance Zone—The zone immediately surrounding the Infected Zone is the Buffer-Surveillance Zone, which with the Infected Zone comprises the Control Area. The zone initially may include the entire State or States that have Infected Premises or known

contacts. In addition, any Contact Premises located outside an Infected Zone should be surrounded by a Buffer-Surveillance Zone.

The Buffer-Surveillance Zone should be designated by an imaginary line that is roughly parallel to the border of the Infected Zone and a minimum of 6.2 miles (10 kilometers) outside the Infected Zone. The same factors that determine the placement of the border of the Infected Zone (see discussion under "The Infected Zone," above) should be considered in placing the border of the Buffer-Surveillance Zone.

Once the extent of the outbreak is understood, susceptible livestock can be moved *within* the Buffer-Surveillance Zone with a permit (see VS Form 1-27, Appendix III) and appropriate biosecurity measures. However, livestock must not be moved out of the Zone unless they are moved directly to slaughter. All movements of such animals can occur by permit only.

***At-Risk Premises*—**Premises within the Buffer-Surveillance Zone that have clinically normal susceptible animals are known as At-Risk Premises. Surveillance on an At-Risk Premises will consist of a minimum of two inspections of animals per incubation period of the disease under investigation.

***Adjustment of Buffer-Surveillance Zone Boundaries*—**The perimeter of the Buffer-Surveillance Zone will be adjusted appropriately as epidemiological information becomes available and the extent of the outbreak becomes better known.

Buffer-Vaccination Zone—If emergency vaccination is used to slow the spread of highly contagious disease pathogens, it will be implemented strategically so as to create a "firebreak" ahead of the spread of the disease agent. The area where vaccination is being—or has been—practiced will be known as a Buffer-Vaccination Zone. The Buffer-Vaccination Zone will border the Infected Zone and will be surrounded by a Buffer-Surveillance Zone.

Surveillance Zone—A Surveillance Zone should be established within and along the border of a Free Zone, separating the Free Zone from the Buffer-Surveillance Zone within a Control Area. Surveillance in the Surveillance Zone will focus on premises determined to be at the highest risk of infection.

Free Zone—A Free Zone is a zone in which the absence of the disease under consideration has been demonstrated by the meeting of requirements for disease-free (or "free") status as specified in the OIE *International Animal Health Code.* Within a Free Zone and at its borders, appropriate official veterinary control is applied for animals and animal products as well as for the transportation of animals and animal products.

Securing a Quarantined Premises

The purpose of a quarantine is to prevent pathogen movement onto or from a premises. Thus, a quarantined premises must be secured adequately to ensure that no movement of animals, animal products, or fomites can occur either onto or from the premises. All access points not directly supervised by a regulatory official or other trustworthy individual should be gated or blocked so that no vehicular traffic or animals on foot can move through them.

Controlling Movement of People—Human movement is an issue during a quarantine because people can convey a pathogen onto or from a premises. Although State agricultural officials are authorized to control animal and animal conveyance movement, most States may not have the authority to control human movement.

It is possible that in some States a Governor's Emergency Declaration could include specific language that would prohibit any movement of people from quarantined premises. In the absence of power to control people's movements, however, the AERO representative on the scene must use every reasonable means of persuasion available to gain needed compliance with quarantine and biosecurity activities.

Preventing Unauthorized Visits—It is especially important to prevent people from outside the premises—who may be unaware of the premises' quarantine status—from accidentally gaining access to the premises and thus becoming "part of the problem" in the effort to prevent pathogen transmission. Clear, boldly lettered signs should be posted immediately at the entrance of each quarantined premises to warn against intentional or accidental incursion. The Quarantine and Movement Control Unit should have a supply of weatherproof signs on hand so that adequate numbers of signs can be delivered to various premises as soon as a Biosecurity Team Member determines signage needs.

Everyone present on the premises should be briefed regarding the disease condition suspected, necessary quarantine conditions, biosecurity measures, and animals and items that can and cannot be moved so as not to violate the quarantine. Each individual must understand the concept of quarantine and what it means for the modification of his or her behavior.

Specific attention should be directed to the needs or perceived needs of any people on the premises to leave the quarantined premises over the next several hours and/or days. This is a high-risk period for disease transmission, as biosecurity and other controls will still be in the process of being put in place. Thus, rigorous biosecurity measures (e.g., the use of clean clothes and boots and the cleaning and disinfection of vehicles) will be necessary for any movements onto or from the premises.

Planning for Medical Emergencies—To ensure adequate contingency planning prior to any medical need, the AERO team member should determine whether people on the premises have any serious medical conditions that might necessitate their immediate

departure from the quarantined premises. If people must leave and/or re-enter the premises, strict biosecurity standards should be observed, though people's safety and well-being will take top priority.

If a person on a premises is injured or becomes seriously ill, every effort must be made to aid and obtain medical care for the person as quickly as possible. Assuming that risk of pathogen transmission exists, the following steps should be taken as soon as arrangements for an ambulance or other vehicle have been made:

- The Quarantine/Movement Control Unit Leader and the Biosecurity Unit Leader should be notified of the incident.

- A Biosecurity Team Member or other individual experienced in biosecurity and cleaning and disinfection procedures should be sent—along with cleaning and disinfection supplies—to meet the emergency vehicle at the medical facility.

- The Biosecurity Team member should inform authorities at the medical facility of the existence of the risk of pathogen transmission and ensure that cleaning and disinfection procedures for the patient and medical personnel are initiated as soon as appropriate.

- The patient's clothing and any of the medical personnel's clothing that may have become contaminated should be sealed in a plastic garbage bag. The clothing then either should be (a) discarded safely or (b) removed from the bag and laundered, with care taken to dispose of the contaminated bag safely. Any contaminated medical equipment should be cleaned thoroughly (if possible, autoclaved) and disinfected with an approved disinfectant.

- Any surface—inside or outside the medical facility—that may have become contaminated should be cleaned thoroughly and disinfected with an approved disinfectant.

- The Biosecurity Team member should clean and disinfect the emergency vehicle, including the interior, underside, wheels, and wheel wells, and/or ensure that the vehicle is taken through an automated carwash facility. (See "Biosecurity: DOs and DON'Ts," Appendix I.)

- Any clothing or boots of emergency vehicle attendants, orderlies, or other personnel that may have become contaminated should be removed, sealed in a plastic garbage bag, and laundered, dry cleaned, and/or disinfected with an approved disinfectant or discarded.

Planning for Animal Care—Although the movement of personnel within a quarantined premises should be limited in order to prevent the spread of disease organisms, allowance must be made for the humane care of animals and for other necessary activities. Accordingly, regulatory personnel or other trustworthy people can be given the

responsibility to secure the premises and to ensure that all of the animals are accounted for, well cared for, and under control.

Stopping All Movement Until Biosecurity Measures Are in Place—The stopping of *all* movement (except, of course, for medical emergencies) when a highly contagious disease is suspected is difficult, but necessary, while adequate biosecurity measures and other controls are being put in place. An FAD can be spread to susceptible species directly—via animal contact with an infected animal or infected animal products or via arthropod vectors—or indirectly, via animal contact with contaminated feed, water, and fomites. Effective biosecurity measures are essential to the prevention of pathogen spread via these means**.**

Dealing With Other Quarantined Facilities—Not all of the premises that may be placed under quarantine necessarily will have animals present. Animal product-processing premises, for example, may be placed under quarantine pending cleaning and disinfection because of their recently having received animals from Infected Premises or from premises suspected of being infected.

During the period before cleaning and disinfection have been completed, movements onto or from such premises should be restricted to activities that are absolutely necessary at that time, and all movements must meet acceptable biosecurity standards. (For information on biosecurity, see the NAHEMS "Biosecurity" guidelines, in progress.)

Utilizing Related Facilities—If a animal-related facility (e.g., a processing plant, artificial insemination center, or auction market) is located within an Infected Zone and thus is closed down or inactive, consideration can be given to asking facility officials for the temporary use of the facility in ways that would benefit disease control efforts. For example, the facility might be used—after rigorous cleaning and disinfection—as an AERO Incident Command Post or Unit Office. (Information on use of slaughter facilities for the slaughter of infected animals is available in the NAHEMS "Slaughter Facilities" guidelines, in progress.)

Movement After Controls Are Instituted

Once adequate movement controls are in place, vehicles, and equipment can be allowed to leave a Quarantined Premises provided that the items meet acceptable biosecurity standards. People who have been working in a quarantined animal production unit and who absolutely must leave the premises before cleaning, disinfection, and depopulation activities are completed should be subjected to a complete personal disinfection regimen and discouraged from having contact with susceptible species for a period of time equaling one incubation period. (See the NAHEMS "Cleaning and Disinfection" guidelines, in progress, for further information.)

Waiting Period for Contact With Susceptible Animals—Even after thorough personal cleaning and disinfection have been completed, people who leave the premises should not come into contact with susceptible animals for at least one incubation period. Written

confirmation of each person's understanding of this condition should be obtained before he or she is permitted to leave the premises.

An exception to this rule is made for official animal health emergency personnel who are following strict biosecurity procedures when moving between premises. For these individuals only, the minimum waiting time can be considerably shorter (e.g., 12 hours for foot-and-mouth disease or other highly contagious disease). For additional information, see the NAHEMS "Cleaning and Disinfection" guidelines (in progress).

Animal Products—In general, no products (e.g., milk, hay, or crops) from quarantined livestock premises or quarantined product-processing premises should be permitted to leave the premises. These products should be destroyed, consumed, or held for adequate sampling and laboratory confirmation of pathogen-negative status before movement is allowed.

Quarantine and Movement Control Unit personnel who provide information to owners should emphasize that in the midst of an animal disease outbreak, laboratories will need to give priority to the analysis of samples that support animal diagnosis. Thus, sampling and laboratory confirmation for the presence of disease on extraneous materials (e.g., feathers or hides) may take a longer time than normally would be expected.

Quarantine Checkpoints

The purpose of area quarantine security checkpoints is to control the movement of vehicles containing farm-related products, materials, or animals that may spread disease pathogens. Checkpoints should be located on all rural roads at the point where the roads enter the Control Area. At these checkpoints, all vehicles suspected of containing farm-related products, materials, or animals should be stopped. Each driver should be asked to show a permit (obtained from the Permit Team) for the movement of the items being transported.

Although it may be impractical to establish checkpoints on interstate highways, checkpoints should be established at entrances and exits of major highways within the Control Area. In any case, vehicles without proper permits for movement should be asked to return to their point of origin.

Quarantine and Movement Control personnel staffing a checkpoint probably will need to utilize the "administrative stop" model used by law enforcement personnel to establish sobriety checkpoints. In most jurisdictions, vehicles can be stopped briefly so that a concise list of specific questions can be asked and suggestions for personal biosecurity made. Arrangements for such stops should be made in consultation with—and possibly with the participation of—local law enforcement personnel.

Checkpoints should be staffed 24 hours per day and should be maintained for 30 days after the last infected animal is depopulated or until the situation indicates that the checkpoints are no longer needed.

Operating a Quarantine Checkpoint

Being stopped at a quarantine checkpoint—regardless of the important community goals being served by quarantine or movement control enforcement—raises a certain level of concern in any driver. Thus, Quarantine Checkpoint Teams and other Quarantine and Movement Control personnel should use their best interpersonal skills as they provide this needed public service.

Communicating With Drivers—Personnel at quarantine checkpoints should make a special effort to be helpful and informative in their interactions with drivers. Each driver should be greeted in an open, friendly manner and informed immediately of the reason for the checkpoint. The driver also should be given an estimate of the time (if any) that he or she will need to wait in line.

Information Sheets—Quarantine and Movement Control personnel may find it helpful to hand each driver an information sheet to read while waiting. Ideally, a well-written information sheet will:

- Provide information on the reason for the checkpoint, reinforcing the concepts conveyed verbally by checkpoint personnel.

- Provide information on how to obtain a permit for movement.

- Provide information on alternative routes to major destinations.

- Provide (Safety Officer-approved) information on basic biosecurity measures, including cleaning and disinfection, as well as a list of readily available disinfectants approved for use by the public along with information on the safe use and disposal of these disinfectants.

- Anticipate and deflect at least some of the drivers' questions and provide the driver with the opportunity to learn more about the animal health emergency and the response to it while waiting.

- Allow for uniform information dissemination and foster increased public support for and cooperation with animal health emergency response efforts

In addition, the information sheet should list the appropriate AERO/Incident Command Post telephone numbers that can be used by members of the public wishing further information. A knowledgeable agricultural spokesperson should be present, if possible, at each checkpoint to answer questions. Otherwise, checkpoint personnel should refer individuals with questions to the information sources and telephone numbers provided.

Farm products from premises not known to contain infected or exposed animals within the Control Area may be marketed on a permit basis. Criteria for issuing permits will be determined for each outbreak, but in general such criteria will be less stringent for the Buffer-Surveillance Zone than for the Infected Zone. In any event, susceptible livestock can be moved within each zone with a permit, though not necessarily out of the zone.

Local news media can help complement other methods of notifying people as to what animals, animal products, and other materials may and may not be moved.

Dealing With Contaminated Items—The information sheet provided each driver should include information on cleaning and disinfection and on the safe use and disposal of disinfectants that are readily available and approved for use by the public. However, a quarantine checkpoint should not be used as a cleaning and disinfection station. If the vehicle (or person, animal, or piece of equipment inside the vehicle) is in such a contaminated condition as to pose an obvious biosecurity risk, it should not be allowed to pass the checkpoint but rather turned back to its point of origin. The driver should be provided with instructions on cleaning and disinfection procedures.

Animals Designated for Movement Control—Quarantine checkpoint personnel must be given specific information—with illustrative photographs, if possible—on susceptible animals that should not be allowed movement. (Susceptible animals should not be allowed movement unless documentation can be provided that a period of time equal to the required number of incubation periods has elapsed without detection of disease.) In the event of any question about personnel's ability to identify the designated species of animals correctly, photographs or other information about unique characteristics should be provided.

Table 1 (see next page) identifies several highly contagious diseases and the animals that are susceptible to them. All susceptible animals are subject to quarantine and movement control restrictions.

Table 1. Selected Highly Contagious Diseases: Susceptible Animals

Disease	Susceptible Animals					
	Cattle	Sheep	Goats	Swine	Poultry	Wildlife
African Swine Fever				X		Warthogs, bush pigs, giant forest hogs, feral pigs
Classical Swine Fever				X		Wild boar, feral pigs
Foot-and-Mouth Disease	X	X	X	X		Ruminants, hedgehogs, armadillos, nutrias, elephants, capybaras, camelids, rats, and mice
Highly Pathogenic Avian Influenza					X	It is reasonable to assume that all avian species are susceptible to infection.
Newcastle Disease					X	Most avian species, especially psittacines and waterfowl
Peste des Petits Ruminants		X	X			Dorcas gazelles, Nubian ibexes, Laristan sheep, gemsbok, white-tailed deer
Rinderpest	X	X	X	X		Most wild cloven-hoofed animals, including elands, kudus, wildebeest, various antelope, bush pigs, warthogs, giraffes, buffalo
Swine Vesicular Disease				X		

Movement Restrictions—Quarantine checkpoint staff should implement necessary movement restrictions, as discussed below. Because foot-and-mouth disease is a highly contagious disease of significant concern to U.S. agriculture, most of the information on movement restrictions below is oriented to this disease. For information on animal species subject to quarantine and movement control during outbreaks of other highly contagious diseases, see Table 1 in this document, the NAHEMS "Field Investigation Manual" (in progress), or material related to the designated "List A" diseases on the Office International des Epizooties' Web site (www.oie.int).

***Nonsusceptible Animals*—**During an outbreak of highly contagious disease such as foot-and-mouth disease, movement of nonsusceptible animals requires a permit and is contingent upon specific, rigorous cleaning and disinfection requirements. The animals must be assumed potentially to have been in close contact with infected or contact animals or premises.

***Pets*—**During an outbreak of highly contagious disease, checkpoint personnel should be given a list of pet animals that may be allowed movement in the company of their owners. The owners are responsible for seeing that their pets are clean so that the animals do not act as carriers of disease pathogens. Proposed movements of all other animals should be checked with AERO/Incident Command personnel.

Planning for Quarantine Release

Officials should never place a quarantine without a plan for its release. If a State is quarantined, this plan should specify:

- The length of time that a complete ban on animal and animal product movement will be in effect.

- The procedures by which the entire State will be evaluated for the presence of further disease sites.

- Whether the State quarantine will be released (a) by sections, according to evaluations of perceived risk, or (b) entirely, except for the Control Area(s).

If no further disease sites are found within a time equaling two incubation periods after the last positive confirmed case, it may be possible to release all sections of the State outside a Control Area. Quarantine and intensive surveillance within the Control Area will be maintained for three incubation periods.

Lifting a Quarantine on an Infected Premises

Before a quarantine on an Infected Premises can be removed, all areas of the premises must be evaluated and certified as clean. Thus, a quarantine on an Infected Premises should be lifted only at the recommendation of the Cleaning and Disinfection Unit Leader in consultation with the Cleaning and Disinfection Team Leader on the premises.

Prior to quarantine release, the AERO team will need to complete a number of premises activities such as:

- Dealing with susceptible animals and nonsusceptible animals on the premises.
- Disposing of animal products and other contaminated or potentially contaminated materials.
- Dealing with wildlife.
- Cleaning and disinfecting the premises, with an adequate subsequent period of "downtime" allowed.
- Placement of sentinel animals.

Each of these activities is discussed briefly below.

Dealing With Animals—Both susceptible animals and nonsusceptible animals—the latter acting as fomites—pose a risk of spreading pathogens between premises.

Susceptible Animals—To stop the spread of disease pathogens, all susceptible animals on Infected Premises are to be depopulated and all contaminated materials destroyed as quickly as possible.

Nonsusceptible Animals—Although susceptible animal species will have been removed from the premises early in the disease eradication effort, nonsusceptible animal species also must be dealt with and controlled carefully. Nonsusceptible species may act as fomites and carry infectious material within or between premises.

Although pet dogs and cats are so common as to be almost unnoticeable to the casual observer, these animals must be cleaned and bathed thoroughly—using a good animal shampoo—to remove any organic matter and disease pathogens. Subsequently, their movements must be kept under strict control until the premises has been declared free of infection and the quarantine has been lifted.

Historically, all of the pets and other nonproduction animals on an Infected Premises sometimes have been euthanatized along with the susceptible species of production animal. However, this is a very questionable practice that probably is not in the best interests of the owner.

All animals on a premises should be evaluated carefully for possible susceptibility, infection, and contamination. The fact that an animal is a pet or a "novelty" animal rather than a production animal does not mean that it is immune to an FAD. Feral and wild animals, including scavengers, on the premises must be identified and trapped and/or destroyed (see "Dealing With Wildlife," below).

Disposing of Contaminated Products and Materials—Products of animal origin and other contaminated materials must be disposed of, and the area where they have been kept or stored must be cleaned and disinfected. An adequate job of cleaning and disinfection will ensure that no animal excretions or secretions are left as possible protected areas in which disease pathogens can live.

Areas that may contain secretions or excretions also must receive attention. Stagnant pools of water, for example, must be eliminated or treated so that they cannot maintain disease pathogens. (See the NAHEMS "Disposal" and "Cleaning and Disinfection" guidelines, in progress.)

Dealing With Wildlife—The risk of quarantine compromise posed by wildlife should be evaluated on a case-by-case basis. Consideration should be given to the particular species of wildlife identified on or near an Infected Premises and the species' susceptibility to the FAD of concern. The presence of feral swine, for example, would be highly significant in an area facing an incursion of diseases such as African swine fever, classical swine fever, or foot-and-mouth disease to which feral (and domestic) swine are susceptible.

The presence of other wildlife species also could be significant, depending on the FAD involved. Even wildlife species that are nonsusceptible to an FAD potentially can act as fomites in carrying the disease agent to other premises.

***Foot-and-Mouth Disease*—**Unless clearly indicated by adequately structured epidemiologic studies, elimination of wildlife to control foot-and-mouth disease generally is unnecessary. During various foot-and-mouth disease outbreaks, wildlife species have been affected, but no persistence of the disease among wildlife has been demonstrated.

It is interesting to note that cattle can carry the foot-and-mouth disease virus, as evidenced by recovery of the virus from the nasopharyngeal area for a period of time exceeding 28 days. However, shedding of the foot-and-mouth disease virus in cattle has never been demonstrated. In contrast, Cape buffalo can both carry and shed the virus.

***Enumeration and Sampling*—**Enumeration of the wildlife species in an area and collection of samples from premises wildlife populations can provide valuable information for epidemiologic evaluation. Local wildlife agencies also can serve as sources of information regarding the species—and relative numbers thereof—that may be found in an area.

The extensive sampling sometimes done by wildlife agencies around sites known to be infected can serve to thin a wildlife population. Unless trapping is the method of collection, however, sampling also may serve to disperse local wildlife widely.

Cleaning, Disinfection, and Downtime—After all the susceptible animals on a premises are gone, all the animal products have been disposed of properly, and all sources of pathogen transmission from fomites or animals acting as fomites have been eliminated, the process of premises cleaning and disinfection can begin. Cleaning and disinfection

should be followed by a period of downtime. These activities are summarized briefly below. (For additional details, see the NAHEMS "Cleaning and Disinfection" and "Biosecurity" guidelines, in progress).

Cleaning—The cleaning of a premises allows both for the removal of some infectious microorganisms and for the destruction of environments favorable to microorganism survival and growth. Once all surfaces are clean, the proper use of disinfectants results in additional progress toward elimination of infectious microorganisms.

Disinfection—The disinfection of a premises is designed to reduce the number of microorganisms **so** that the likelihood of their transmission is decreased. However, the need to apply a disinfectant solution uniformly over huge areas—including ceilings, heating ducts, lights, plumbing, structural members, walls, and floors—makes it very difficult to ensure that the disinfectant process reaches all areas, including difficult-to-access ones.

Downtime—The term "downtime" refers to a period of time—immediately after a premises has been cleaned and disinfected—in which premises facilities are left empty and unused and in which they are allowed to dry out completely from the application of disinfectant. An adequate period of downtime will equal at least three incubation periods of the disease in question.

Downtime is absolutely essential because even after a thorough premises cleaning and disinfection effort, some microorganisms are likely to remain. The drying of cleaned and disinfected premises surfaces will provide a less favorable environment for microorganism survival and growth, thus allowing disease pathogens to decline to a point at which susceptible animals' chances of infection are slim to none.

Security—Maintenance of a security guard on a premises during downtime probably is unnecessary because the owner typically has invested so much time and effort in disease eradication by this time that quarantine and biosecurity violations are highly unlikely. The owner, in fact, may be the very best security available at this point.

Members of the Quarantine Team, however, should make regular drive-by checks of the premises. In addition, telephone checks with the owner can provide any needed regulatory history to qualify the premises for the placement of sentinel animals.

Placement of Sentinel Animals—The placement of sentinel animals on a premises provides a test of whether the premises is free of disease pathogens and thus safe for the addition of replacement stock. If sentinel animals are used, they should be introduced only after thorough cleaning and disinfection have taken place and the required period of downtime has been completed.
In deciding whether to place sentinel animals on a premises, the quarantine/disease status of adjacent premises should be considered. Sentinel animals should be placed on a premises only if adjacent premises either (a) are free of disease or (b) have been certified

as adequately cleaned and disinfected by the Cleaning and Disinfection Unit Leader in consultation with the appropriate Cleaning and Disinfection Team Leader.

The age and species of the sentinel animals should be such that they are susceptible to the disease of concern. The animals also should be robust and active so that they will be more likely to move to all the areas on the premises that may harbor disease organisms.

Use of sentinel animals can provide support for declaration of a premises as free of disease and for subsequent removal of a premises quarantine only if:

- The sentinel animals have been on the farm for three incubation periods, during which they have had access to all areas where animals previously were housed or animal products were stored.

- The sentinel animals have undergone a complete veterinary inspection, including collection of laboratory samples.

- All laboratory samples from the sentinel animals test negative for the presence of the disease of concern.

Removal of Quarantine—All areas of an Infected Premises must be evaluated and certified as clean before a premises quarantine can be removed. If Federal or State quarantines are in effect, various administrative processes for removing quarantines on premises will need to be completed.

Lifting a Quarantine on a Contact or Suspect Premises

Before a quarantine on a Contact or Suspect Premises can be lifted, animals and animal products that have left the premises must be traced and destroyed. The risks posed by wildlife also must be addressed. (See the NAHEMS “Biosecurity” and “Wildlife Management” guidelines, in progress.)

In addition, products of animal origin must be disposed of, and areas where they have been kept, stored, or allowed to accumulate (e.g., stagnant water pools) must be cleaned and disinfected. An adequate job of cleaning and disinfection will ensure that no animal excretions or secretions are left as possible protected areas in which disease pathogens can live. In addition, a period of “downtime”—equal to three incubation periods of the disease of concern—must be scheduled to allow any remaining disease organisms to die. (See above discussion and the NAHEMS “Cleaning and Disinfection” guidelines, in progress.)

Coordination With Other Areas or States

Depending on the size of the outbreak, coordination of quarantine placement and release between areas, States, or regions may be necessary for effective disease control and eradication. In addressing the question of whether such coordination is necessary, a complete evaluation of all animal and animal product movements that have occurred in relation to the index Infected Premises should be made. It is entirely possible that this evaluation could reveal that one or more areas, States, or regions or even another country also are at risk.

Legal Issues

A number of legal issues may arise as part of quarantine and movement control activities. Examples of such issues include:

- Identification of the circumstances under which it is appropriate for Government to use its police powers to protect the public.

- The relative emphasis to be placed on (a) the rights of individual property owners and (b) the public good.

- The types of actions that constitute a regulatory taking and the potential eligibility of property for appraisal and compensation by Federal or State Government.

To expedite disease eradication and control and also to minimize the possibility of legal action, AERO Incident Command (the State Veterinarian and Area Veterinarian in Charge), the AERO Operations Chief, and Quarantine and Movement Control personnel may wish to keep the following recommendations in mind:

- Be mindful of the fact that “time is of the essence” in confirming the presence of an FAD and in instituting subsequent quarantine and movement controls. Know the correct procedure for sending samples to the National Veterinary Services Laboratories (NVSL) for confirmation, and ensure that samples are sent expeditiously. Alert NVSL in a telephone conversation (rather than via a voice or an e-mail message) to the fact that the sample is on its way.

- Be prepared to communicate quickly with key contacts (e.g., NVSL, State Governmental and other agricultural and legal officials, APHIS Emergency Programs staff, and State and local law enforcement personnel). This may mean using the telephone rather than e-mail—or both—to communicate key messages.

- Communicate with key personnel about a potential animal health emergency sooner rather than later. Most officials would prefer to be alerted to a situation early—even if the incident turns out to be a “false alarm”—rather than later.

- Understand the quarantine and movement control laws in the affected State as well as their implications for business and trade during a disease eradication and control effort.

- Appreciate the fact that the placement of an effective quarantine necessitates finding the right balance between (a) making the Control Area large enough to be effective as an instrument of disease control and (b) avoiding making the area so large as to affect businesses that may not need to be restricted.

- Do not hesitate to request prompt outside assistance (e.g., from the State officials of the affected State, other States, or the Federal Government) if you believe that such assistance would help bring the disease under control more quickly or that it would strengthen the legal underpinnings this effort (e.g., as a result of a Declaration of Extraordinary Emergency by the Secretary of Agriculture or of a Declaration of Emergency by the Governor of the affected State).

- Maintain a positive ongoing relationship with State legal officials and other reliable sources of legal counsel who can be consulted on short notice during the management of a disease outbreak.

- Understand the regulations and procedures for appraisal and compensation (see the NAHEMS “Appraisal and Compensation” guidelines), and make every effort to ensure that affected parties receive fair, prompt reimbursement.

- It may be desirable to annotate a quarantine order with the date when positive laboratory results were received and/or when a premises was declared to be infected. This simple documentation may be helpful to an attorney placed in the position of evaluating the quarantine order and determining whether an owner hoping to challenge the legality of the quarantine has an actionable case.

Movement Control: General Considerations

The concept of "movement control" allows for the movement of animals, animal products, vehicles, equipment and (occasionally) people, subject to certain conditions. Movement control occurs both (a) as a matter of routine daily practice and (b) as a means of disease eradication and control during an animal disease outbreak or other animal health emergency.

Under nonemergency conditions, the States control *intrastate* movement of animals and products, and the Federal Government controls *interstate and international* movement of animals and products. If the Secretary of Agriculture declares an Extraordinary Emergency, the Federal Government is authorized to control *intra*state movement in addition to *inter*state and *international* movement.

During an animal disease outbreak, the officials instituting movement controls will impose certain requirements, including the use of permits, as prerequisites to movement. They also will require the keeping of records so that movements can be followed as part of disease eradication and control activities. To help stop the spread of disease pathogens, some animals and animal products will have be traced and/or recalled, and the movements of nonsusceptible animals will have to be controlled. These important functions are discussed in this chapter.

Establishing a Permit System

In the face of a disease outbreak, establishing a permit system for animal movement will allow regulatory personnel to manage all movements to and from Infected Premises, Contact Premises, and Suspect Premises. Effective management of such movements is vital to the success of the disease eradication and control effort.

Interacting With the Public—A Permit Team, led by a Quarantine and Movement Control Team Manager, should be in place and ready to function should an FAD outbreak occur. To facilitate interaction with the public about permits for movement, the Permit Team Leader should ensure that a series of telephone numbers, ideally dedicated for this purpose (with lines that are separate from those of the AERO Command Post switchboard), are established for callers wishing permit information. Use of these dedicated lines will allow callers to avoid the congestion that may occur with a high volume of calls from the public for general information.

Notifying Community Institutions and Businesses—The need for strict enforcement of the "no visitor" rule is important throughout the Control Area, though the need is especially high, of course, in the Infected Zone. Permit Team personnel must contact community officials, schools, public utility companies, and businesses such as mail and package delivery services to inform them of the risks inherent in visits by any of their personnel to premises with susceptible species in the Infected Zone and to request their

cooperation and support. (In each case, the Permit Team member making the call should ask to speak with a responsible official.)

Making Alternative Arrangements—Community institutions and businesses can be encouraged to work with the public to devise alternative arrangements to substitute for in-person premises visits. A premises owner or manager, for example, can arrange with a utility company to telephone in a meter reading, thus eliminating the need for a utility representative to visit the premises. The security in place around an Infected Premises or an Infected Zone normally also will serve quite adequately to keep visitors off quarantined premises.

Identifying Resource People—The Permit Team should take time early on to identify experienced local veterinary practitioners and related personnel, as such individuals often can serve as highly valuable information resources. These personnel are likely to have broad knowledge of the local animal industry as well as helpful local contacts who can be consulted about various topics, including matters requiring knowledge of local conditions and resources.

Movement From an Uninfected State

An initial 72-hour movement ban often is necessitated by a case of a presumptive positive FAD, especially a highly contagious FAD such as foot-and-mouth disease. Regardless of whether a 72-hour movement ban is imposed, the following movement restrictions will apply to the movement of animals and animal products between two nonquarantined States or from a noninfected State to a presumptive positive State:

- Susceptible animals and animal products that *have not* been traced to an Infected Premises may be moved in a sealed vehicle if they are accompanied by a completed, signed APHIS/Veterinary Services (VS) Form 1-27, "Permit for Movement of Restricted Animals" (Appendix III).

- Susceptible animals and animal products that *have* been traced to an Infected Premises may not be moved until the traced premises has been monitored following disease confirmation for a time equaling one incubation period with no signs of disease. After a time equaling one incubation period, animals and animal products that have passed inspection at an AERO-established quarantine checkpoint may be moved in a sealed vehicle if they are accompanied by a completed, signed VS Form 1-27.

- Nonsusceptible animals and/or animal products derived from nonsusceptible animals may be moved in unsealed vehicles and without a VS Form 1-27 if all other interstate movement requirements (e.g., a Certificate of Veterinary Inspection or an entry permit) are met. If a vehicle has been on any presumptive positive premises or premises on which animals ultimately traced back to an Infected Premises have been present, the vehicle must be cleaned and disinfected

thoroughly before it is used to haul livestock and poultry or livestock and poultry products.

Movement From a Presumptive Positive State

An initial 72-hour movement ban may be necessitated by a case of a presumptive positive FAD, especially a highly contagious FAD such as foot-and-mouth disease. Regardless of whether a 72-hour movement ban is imposed, the movement restrictions described below will apply to the movement of animals and animal products from a presumptive positive State to an uninfected State:

Movement to Slaughter—If susceptible animals and animal products originate *fewer than* 12.4 miles (20 kilometers) from a presumptive positive or Infected Premises, they may be moved directly to slaughter after a time equaling two incubation periods (provided that no clinical signs of disease have been observed) following the depopulation and decontamination of the presumptive positive or Infected Premises. The animals and/or products must (a) pass inspection at an AERO-established quarantine checkpoint, (b) be moved in a sealed cleaned and disinfected vehicle, and (c) be accompanied by a completed, signed VS Form 1-27.

Movement to Other Premises—If susceptible animals and animal products originate *fewer than* 12.4 miles (20 kilometers) from presumptive positive or Infected premises, they may be moved directly to any other premises after a time equaling three incubation periods (provided that no clinical signs of disease have been observed) following depopulation and decontamination of the presumptive positive or Infected Premises. Animals and animal products must (a) pass inspection at an AERO-established quarantine checkpoint, (b) be moved in a sealed, disinfected vehicle, and (c) be accompanied by a completed, signed VS Form 1-27.

If susceptible animals and products originate *more than* 12.4 miles (20 kilometers) from presumptive positive or Infected premises, they may be moved directly to any other premises in a sealed vehicle accompanied by a completed, signed VS Form 1-27 after a time equaling one incubation period (provided that no clinical signs of disease have been observed) following depopulation and decontamination of the presumptive positive or Infected Premises. If a vehicle has been on any presumptive positive premises or premises on which animals ultimately traced back to an Infected Premises have been present, the vehicle must be cleaned and disinfected thoroughly before it is used to haul livestock and poultry or livestock and poultry products.

Movement From a Traced Premises—If susceptible animals and products originate *fewer than* 12.4 miles (20 kilometers) from a “traced premises” (premises on which animals originating on an Infected Premises are or have been present), they may be moved in a sealed vehicle accompanied by a completed, signed VS Form 1-27 after the traced premises have been monitored for a time equaling one incubation period provided that no clinical signs of disease have been observed.

If susceptible animals and products originate *more than* 12.4 miles (20 kilometers) from a traced premises, they may be moved in a sealed vehicle accompanied by a completed, signed VS Form 1-27.

Movement of Nonsusceptible Animals—Nonsusceptible animals and/or products derived from nonsusceptible animals originating less *than* 12.4 miles (20 kilometers) from a presumptive positive premises may be moved in a sealed, disinfected vehicle accompanied by a completed, signed VS Form 1-27.

Nonsusceptible animals and/or products derived from nonsusceptible animals originating *more than* 12.4 miles (20 kilometers) from a presumptive positive premises may be moved in unsealed vehicles without a VS Form 1-27.

Movement From Shows and Exhibitions

An initial 72-hour movement ban may be necessitated by a confirmed positive case of an FAD, especially a highly contagious FAD. Regardless of whether such a ban is imposed, the following movement restrictions will apply to the movement of animals and animal products from shows or exhibitions located within the Control Area or State:

- Nonsusceptible animals at a show or exhibition must be bathed and disinfected. They should then (within 28 hours following the announcement of a confirmed positive FAD) be returned directly to their home premises.

- All susceptible animals at a show or exhibition at which *no* animals are from (a) a confirmed positive premises or (b) a premises on which animals traced back to an Infected Premises have been present must be bathed and disinfected and returned directly to their home premises. This should be done within 28 hours following the announcement of a confirmed positive case of FAD. The animals must be quarantined for observation on the home premises for a time equaling disease incubation periods.

- All susceptible animals at a show or exhibition from a confirmed positive or presumptive positive premises or from premises on which animals ultimately traced back to an Infected Premises have been present should be euthanatized and disposed of—within 24 hours—in the State where the show or exhibition is located, according to the procedures of that State.

The show grounds or other exhibition premises within the Control Area or State typically would be quarantined.

Movement Control and Recordkeeping

Keeping records of animal movements (e.g., by means of individual animal or animal lot identification) is important not only during an animal health emergency but also on a routine daily basis. During nonemergency periods, animal movement records reflect

common sense and sound business practice in dealing with animals, plants, or agricultural commodities. In an outbreak of foreign animal disease, however, such records truly become critical to disease eradication and control.

Although movement control laws vary, States typically require only livestock dealer participation in movement recordkeeping rather than individual owner recordkeeping. Examples of the former are seen in State livestock dealer registration laws and in the brand inspection laws of a number of Western States.

To manage an outbreak of foreign animal disease effectively, however, areas and States must go beyond livestock dealer registration and brand inspection laws to have at their disposal an appropriate means of identifying and monitoring Control Areas and of tracking and controlling the movement of animals. For the same reason, movement control recordkeeping should be part of the day-to-day activities of all animal agricultural operations.

Permits for Movement of Animals and/or Animal Products

An official permit for movement of animals and/or animal products can be issued at the discretion of AERO/Incident Command to allow the movement of animals and/or animal products from a premises or a geographic area described in a quarantine order. A movement permit (referred to hereafter as a "permit") can consist of a VS Form 1-27, a State-issued permit document, or a letter—customized to the applicant's situation—generated by the Permit Team.

A letter generally is issued in cases in which the items the applicant wishes to convey are not covered on the VS Form 1-27. The letter should provide the same information as that requested on the VS Form 1-27 and should describe the specific items to be conveyed.

A permit may be issued for movement of an animal or animal product if inspection of the animal or product and premises involved demonstrates that such movement will not result in the dissemination of the disease agent. The permit must identify clearly the materials to be moved as well as the inclusive dates for the day(s) during which the permit is valid. Permits typically are issued for one day, one movement, and one vehicle.

The conditions for issuance of a permit should include the following:

- No animal in the herd of origin has shown clinical signs of the disease of concern for a period of time equaling two incubation periods or longer.

- No susceptible animals have been moved to the premises of origin for a period of time equaling two incubation periods.

- The origin and destination premises are not under quarantine.

- The premises of origin is not an Infected Premises, Contact Premises, or Suspect Premises, and no epidemiological evidence of disease is detectable.

- Transport conveyances for the animals or animal products meet acceptable biosecurity standards.

- Susceptible species to be moved have been examined by a veterinarian within 24 hours prior to movement and have been found to be free of clinical evidence of disease.

Permits for Movement Within a Control Area—Permits to move animals and materials from premises to premises within a Control Area can be issued if:

- No animal on the premises of origin has shown clinical signs of the disease of concern for two incubation periods or longer.

- No susceptible animals have been added to the premises of origin for a period of time equaling two incubation periods.

- The premises of origin is not an Infected Premises, Contact Premises, or Suspect Premises, and no epidemiological evidence of disease is detectable.

- Transport conveyances meet acceptable biosecurity standards established for the Control Area.

- Susceptible species to be moved have been examined by a veterinarian within 24 hours prior to movement and have been found to be free of clinical evidence of the disease of concern.

(Also see discussion of movement in relation to Infected, Buffer-Surveillance, and Surveillance Zones, below.)

Permits for Movement to Slaughter Within a Control Area—Permits to move to slaughter (for human food use) can be issued if (a) the animals meet the requirements of USDA's Food Safety and Inspection Service for food use and (b) the animals are eligible for a permit for movement from premises to premises or for movement directly to slaughter.

Movement: The Infected Zone

In an outbreak, the Infected Zone initially will encompass the perimeter of all presumptive or confirmed positive premises and will include as many of the Contact Premises as is required logistically or scientifically. The boundary of the Infected Zone initially should be established at least 6.2 miles (10 kilometers) beyond the perimeters of the presumptive or confirmed positive premises.

All roads leaving an Infected Zone must have quarantine checkpoints. The checkpoints must be supervised 24 hours per day, 7 days per week.

Movement Into an Infected Zone—Susceptible animal species can be moved into an Infected Zone with a permit and with implementation of appropriate biosecurity measures. If the final destination is not located within the Infected Zone, however, all shipments of susceptible animals should be rerouted to avoid the Infected Zone. Vehicles carrying nonsusceptible animals also should be rerouted, except for vehicles carrying animals whose final destination is a premises—which is not under quarantine—within the Infected Zone.

Movement Out of an Infected Zone—No susceptible animal species may leave the Infected Zone unless they are (a) going directly to slaughter at an approved slaughter facility established in the Buffer-Surveillance Zone and/or (b) meet criteria described on a permit. Similarly, no products posing a risk of pathogen transmission may leave the Infected Zone unless they are (a) going directly to a processing facility in the Buffer-Surveillance Zone and/or (b) meet criteria described on a permit. No materials posing risk of pathogen transmission may leave the Infected Zone except by permit.

People and vehicles may be allowed to move out of an Infected Zone provided that acceptable biosecurity measures are followed and provided that such movement is not precluded by a Governor's Declaration of Emergency. Quarantine checkpoints (see Chapter 3), should be placed strategically on transportation routes. Records should be maintained of all movements permitted out of the Infected Zone.

Movement Within an Infected Zone—During the initial phase of an incident, no shipments of species, products, or materials posing risk of pathogen transmission should be allowed to move within an Infected Zone except at the discretion of AERO/Incident Command. Susceptible animals may be moved to a slaughter plant for destruction if the plant is within the Infected Zone under the conditions described in the explanatory notes for items 26-29 on VS Form 1-27 (see Appendix III) and with appropriate biosecurity measures.

People and vehicles can be allowed to move within the Infected Zone provided that acceptable cleaning and disinfection procedures and other biosecurity measures are implemented. Nonsusceptible animals may be moved within the Infected Zone with a completed, signed VS Form 1-27 and with appropriate biosecurity precautions.

Movement: The Buffer-Surveillance Zone

The Buffer-Surveillance Zone, which is the zone (within the Control Area) established in the area immediately surrounding the Infected Zone—initially may include the entire State or States that have Infected Premises or known contacts. In addition, any Contact Premises located outside an Infected Zone will be surrounded by a Buffer-Surveillance Zone.

The Buffer-Surveillance Zone should be designated by an imaginary line that is roughly parallel to the border of the Infected Zone and a minimum of 6.2 miles (10 kilometers) outside the Infected Zone. The same factors that determine the placement of the border of the Infected Zone (see discussion under "The Infected Zone" in Chapter 3) should be considered in placing the border of the Buffer-Surveillance Zone.

Susceptible animal species and/or animal products posing risk of pathogen transmission can be moved *within* the Buffer-Surveillance Zone with a permit and appropriate biosecurity measures. However, neither animal species nor animal products and materials posing risk of pathogen transmission can be allowed to leave the Zone.

The perimeter of the Buffer-Surveillance Zone will be adjusted appropriately as epidemiological information becomes available and the extent of the outbreak becomes better known.

Movement: The Surveillance Zone

The Surveillance Zone is the section of the Free Zone that is adjacent to the Buffer-Surveillance Zone (i.e., separating the Free Zone from the Buffer-Surveillance Zone). Surveillance in the Surveillance Zone will focus on premises determined to be at the highest risk of infection.

Susceptible animal species, animal products, or materials posing risk of pathogen transmission can be moved both within and out of the Surveillance Zone with a permit and appropriate biosecurity measures.

Movement of Nonsusceptible Animals

During an outbreak of a highly contagious disease, Quarantine and Movement Control personnel may need to deal with requests by owners in an Infected Zone to move nonsusceptible animal species. An owner, for example, may request a permit to move poultry within or outside an Infected Zone during a foot-and-mouth disease outbreak. Although poultry are not susceptible to foot-and-mouth disease and other highly contagious diseases affecting mammals, the premises movement restrictions required to control and eradicate the disease may mean significant financial losses based on the owner's inability—under the restrictions—to convey poultry and poultry products to market.

In such cases, Quarantine and Movement Control personnel must conduct an optimal disease eradication and control program while working with the owner to minimize financial losses involved with premises movement restrictions. The disease eradication and control program should allow access to, care of, and feeding of nonsusceptible species (or else their euthanasia for humane reasons). The program also should allow for the timely marketing or movement of the nonsusceptible animal species and/or their products if these actions are compatible with optimal disease control policies and strategies and if they meet acceptable biosecurity standards. *Decisionmakers should keep*

in mind, of course, that people can act as pathogen carriers and that vehicles and equipment required for these activities can spread the disease agent by acting as fomites.

Tracing and/or Recalling Animals and Animal Products

The key to "getting ahead" of a highly contagious FAD and to determining its source is the ability to trace the movements of animals, animal products, and related materials at the beginning of an outbreak. Tracing of animals, animal products, and related materials during the remainder of an outbreak also is essential for final and ultimate disease eradication. Finding exposed herds before they develop the disease may prevent the propagation of additional virus and limit further pathogen spread.

The tracing of movements also is important because it enables the identification and recall of infected, contact, or suspect animals involved in international trade, ideally thus protecting countries who are trading partners from exposure to the FAD.

Tracing involves movements to or from an affected farm, stockyard, meat packing plant, dealer's premises, or other facility. Except for the magnitude of the operation and the method of obtaining information, the same basic principles apply to each type of facility.

Tracing Movements to and From an Affected Farm or Ranch—Immediately upon confirmation of a diagnosis of highly contagious disease on a farm or ranch, and in conjunction with the initiation of eradication procedures, information must be obtained from the owner and employees about movements onto and from the premises. Such information should include movements of animals, milk, meat, manure, equipment, vehicles, feedstuffs, people, or pets within two incubation periods. This time should be extended if infection has been present on the premises for a longer period.

The date of the movement, the type of movement, and the complete address of the final destination must be provided to the Disease Reporting Unit. This will help to ensure that exposed premises are located and quarantined immediately.

The Disease Reporting Unit Leader will designate a person to coordinate tracing information and movements outside the area of operation. This information should be transmitted immediately to the Quarantine and Movement Control Unit for action (e.g., quarantining a premises or informing a State that animal products from an Infected Premises have been moved into it).

In a small area outbreak with low livestock density, it may be possible to carry out tracing operations with available personnel. In a widespread outbreak with overwhelming numbers of movements, it may be necessary to establish a tracing operation involving local police, State police, county agents, and personnel from USDA's Soil Conservation Service or Forest Service, the military, or other organizations. It may even become necessary to utilize Civil Defense volunteers or to employ local personnel in the operation.

Tracing Movements From Affected or Exposed Slaughter Facilities—Tracing fresh, frozen, or chilled animal products from a slaughter facility can be difficult. The veterinary inspector and the plant manager should be contacted initially to determine the inclusive dates of the movements to be traced.

Priorities for transmitting information on movements of animal products should be as follows:

- *First priority:* Interstate movements.
- *Second priority:* Intrastate movements outside the Control Area.
- *Third priority:* Intrastate movements within the Control Area.

The risk of pathogen spread posed by each shipment must be assessed. If the disease of concern can be transmitted through meat or meat products (e.g., diseases such as foot-and-mouth disease, African swine fever, or classical swine fever), the risk of spread will have been reduced substantially if producers are in compliance with USDA regulations requiring the cooking of garbage before its use as feed. With regard to pathogen spread to livestock, shipments into areas with high-density livestock populations would be of greater concern than shipments to large metropolitan areas.

The list of movements to be traced immediately should contain only fresh, frozen, or chilled products from the species involved (e.g., if only infected or exposed swine are slaughtered, only pork products would be traced).

A list of all other products shipped, including processed products and fresh, frozen, or chilled products from noninvolved species; processed fresh, frozen, or chilled products from noninvolved species; hides; and offal should be made and transmitted to the appropriate authorities because surface contamination of products and vehicles may contribute to the spread of the pathogen. Special attention should be focused on the shipment of products containing tissues in which the virus is known to survive (e.g., lymph nodes and bone marrow for the virus causing foot-and-mouth disease).

Tracing Movements of Veterinary Practitioners—Once a highly contagious foreign animal disease is known to exist in an area, veterinary practitioners in the area should be notified immediately and the dangers of pathogen spread emphasized in order to minimize veterinarians' involvement with Infected, Contact, or Suspect Premises. A veterinary practitioner inadvertently may visit such premises before the disease is suspected and subsequently visit other premises before the disease has been diagnosed.

When it is learned that such visits have occurred, the individual doing the tracing should contact the veterinary practitioner immediately. A detailed written report of all activities, starting with the date and time of the arrival at the affected farm, must be prepared. The report also should include the identity of the animal or animals treated, the method of

treatment, the diagnosis, the equipment used, and the cleaning and disinfection procedures (personal and for equipment) followed prior to leaving the premises.

Similar reports including the above information should be prepared for all subsequent premises the veterinary practitioner has visited. The practitioner's car, work clothes, and professional equipment must be cleaned and disinfected immediately and thoroughly.

In addition, the practitioner should be asked to have no contact with livestock for a minimum of 48 hours. Any drugs that may have become contaminated should be burned or buried. Each farm with susceptible animals that the practitioner visited after having been on an Infected Premises should be inspected for a minimum of two incubation periods. If visits were made outside the Control Area, those premises must be quarantined and placed under daily inspection. If exposure is of sufficient magnitude, the treated animals may be depopulated immediately and the herd or flock either maintained under daily inspection for two incubation periods or depopulated.

Tracing Movements From Stockyards or Auction Markets—The procedures for tracing animals, vehicles, and personnel from an Infected, Contact, or Suspect stockyard or auction market essentially are the same as those for an individual premises. The primary differences are the number of movements, the extent of the movements, the existence of records of movements from yards and auction markets, and the extent of human contact with the animals.

After determining the number of days to be covered prior to the reported outbreak, the person doing the tracing should identify the individuals who have the records that will supply the needed information (e.g., commission firms, dealers, inspectors, State Inspectors, or Veterinarians' Offices). Local movements should be traced as early as possible. If the area is not within a Control Area, the need to complete the tracing is much more urgent.

Local movements may be traced by the Field Unit office in the area. If a field unit is not readily available, a tracing team to trace local movements should be established.

Movements that are outside the Control Area, but within the State, must be reported immediately to the Quarantine and Movement Control Unit. Movement outside the State should be reported to the Quarantine and Movement Control Unit and directly to the State of destination and to other Quarantine and Movement Control Units in other regions in which the movements have occurred or will occur.

A list of all personnel employed by the facility and of events involving other human contact with the animals should be obtained from the facility managers. Each person on the list should be contacted to determine their (a) movements since the time of exposure of infection in the facility and (b) ownership or other contact with livestock away from the facility. Each movement must be evaluated and its risk assessed.

Recalling Animals and Animal Products From Trade Destinations—In situations in which infected, contact, or suspect animals or contaminated items already have left U.S. ports for a trade destination, the veterinary officials of the destination country should be informed immediately of the situation and offered the option of discontinuing the transaction. Typically, the representative will refuse to accept the animals or products and they then will be returned to the United States. AERO officials will consult with APHIS port officials to determine whether the animals or products can be returned to the owner without undue risk or whether they should be destroyed immediately at the port.

Suggesting Policies for Human Movement Control

Permits are used to control the movements of animals and animal products rather than those of humans. However, officials may be able to encourage movement controls for the general human population in a Control Area by suggesting general policies for certain specific movements such as those of schoolchildren.

Although such policies may be legally unenforceable, most people tend to act in their own self-interest and in the interests of their communities. Thus, officials should not underestimate the value of education in garnering voluntary public compliance with suggested human movement policies.

Early Days of Outbreak—During the first few days of an outbreak, it should not be necessary to prevent children from returning home from school. Once the children are home, it may be advisable for them to miss a few days of school if (a) their home is located in an Infected Zone and the school is outside the Infected Zone or (b) their school is located in an Infected Zone and their home is outside the Infected Zone.

The purpose of keeping the children home will be to allow time for various emergency response procedures (e.g., depopulation as well as cleaning and disinfection) to be completed on the premises without incurring the risk of spreading the disease pathogen to other premises. The same restrictions should apply to adults who may wish to leave the premises for a variety of reasons (e.g., work or shopping).

An exception to this general rule would be that of encouraging families to leave the immediate premises while animal euthanasia is taking place. (For additional information, see the NAHEMS “Euthanasia” guidelines, in progress.)

Human Movement From Infected Premises—Control of the movement of people as well as that of animals, animal products, vehicles, equipment, and other materials is critical to the maintenance of biosecurity during a disease outbreak or other animal emergency. However, any prohibition of human movement from the Infected Zone must be authorized by specific language in a Governor’s Declaration of Emergency, as only the States typically have the legal authority to make such a prohibition.
Although movement for anything less than urgent reasons should be discouraged strongly, people and vehicles can leave an Infected Premises without posing undue risk if they can meet rigorous cleaning and disinfection standards and other biosecurity

standards and have not been in contact with an animal production unit (e.g., an animal pen or barn) on a quarantined premises.

Human Movement in a Control Area—Schoolchildren who reside in a Control Area but not on an Infected Premises can move between their residence and a school located outside the Control Zone with minimal risk to animal health if the following policies are followed:

- *Clean child.* Each child should take a bath or shower before leaving for school.
- *Clean clothes.* Each child should wear freshly laundered clothing.
- *Clean footwear.* Each child should wear clean shoes and/or boots.
- *No visits to animal facilities.* Children should not visit any animal facilities.

Other examples of specific movements for which Quarantine and Movement Control personnel may wish to establish policies include (a) delivery of groceries, fuel, mail, and other items and (b) necessary trips to urban areas for medical and dental care, counseling, banking, or other important reasons. In evaluating proposed movements of children (and adults) residing on Infected Premises, further evaluation and more stringent requirements would be in order.

Controlling Visitor Movement

Visitors may wish to enter a premises for a wide variety of reasons—from social calls to reading the electricity meter, delivering fuel or feed, or vaccinating an animal. Although under normal circumstances such visits should not cause undue concern—especially on a well-managed premises on which biosecurity precautions are observed—each visit during a disease outbreak provides an opportunity for the transmission of pathogens to premises animals and is of concern. Accordingly, *all visitors in an outbreak situation should be considered high risk—especially if the premises is within a Control Area.*

Minimizing Visits Within the Infected Zone—An Infected Zone will be established when a positive or presumptive positive case of an FAD is detected on a premises. Movement within the Infected Zone as well as the adjacent Buffer-Surveillance Zone must be minimized. Therefore, only visits that are absolutely necessary should be allowed.

Making Alternative Arrangements—Community institutions and businesses can be encouraged to work with the public to devise alternative arrangements to substitute for in-person premises visits. A premises owner or manager, for example, can arrange with a utility company to telephone in a meter reading, thus eliminating the need for a utility representative to visit the premises. The security in place around an Infected Premises or an Infected Zone normally also will serve quite adequately to keep visitors off quarantined premises.

Premises Vulnerability—As a general rule, the closer a premises is to an Infected Premises, the greater is the premises' vulnerability to pathogen transmission and thus the greater is the need for implementation of rigorous controls, including adequate cleaning and disinfection procedures and other biosecurity measures. It is hoped that individuals responsible for a premises located immediately adjacent to the border of a Control Area would implement especially strict measures compared to people on a premises located miles away. However, considering the multiple locations to which livestock and poultry typically are moved on their way to market, a premises might be vulnerable to pathogen transmission even if it is located a considerable distance from a Control Area (e.g., a premises could become infected from a passing truck that has breached quarantine).

Use of Disposable Outerwear—Within a Control Area, it is highly recommended that all visitors—regardless of how low the risk level is perceived to be—wear disposable coveralls, boots, hats, and gloves during their visits to premises with susceptible species. Although disposable garments may seem expensive, they are much more economical in the long run than reusable outerwear, which must be handled safely, cleaned, and maintained in good condition. (For further information, see the NAHEMS "Biosecurity" guidelines, in progress.)

Importance of Biosecurity—The Quarantine and Movement Control Unit must provide the same degree of intensive pathogen transmission control for areas surrounding the Infected Premises that the Biosecurity Unit provides on the Infected Premises. Thus, Quarantine and Movement Control personnel need to keep the importance of cleaning and disinfection as well as other biosecurity measures clearly in mind.

Fatigue, stress, distraction, and lack of forethought all can cause even the most conscientious individual to lose focus on the crucial importance of biosecurity. Thus, both as a matter of routine practice and during an outbreak, it is essential that all personnel exercise the utmost thought, patience, persistence, and care. A little planning and extra effort in following biosecurity procedures can go a long way in preventing pathogen transmission, protecting animal well-being, and safeguarding American agriculture.

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Acronyms

AERO—Animal Emergency Response Organization

APHIS—Animal and Plant Health Inspection Service (www.aphis.usda.gov). An agency of the U.S. Department of Agriculture.

C&D—Cleaning and disinfection

CFR—Code of Federal Regulations (published by the U.S. Government Printing Office).

EDI—Emerging Disease Incident

FAD—Foreign animal disease

FADD—Foreign animal disease diagnostician

FMD—Foot-and-mouth disease

ICS—Incident Command System

MOU—Memorandum of Understanding

NAHEMS—National Animal Health Emergency Management System

OIE—Office International des Epizooties (www.oie.int)

TDD—Telecommunications device for the deaf

USC—United States Code

USDA—United States Department of Agriculture (www.usda.gov)

VS—Veterinary Services. A unit of the Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

Glossary

Animal—Any member of the animal kingdom (except a human). (From the Animal Health Protection Act, 2002.)

Animal Emergency Response Organization (AERO)—A locally/State-based, nationally coordinated model for responding to animal health emergencies. Utilizes the Incident Command System.

Arthropod vector—A member of the phylum Arthropoda that can transmit a pathogen from one host animal to another.

Biosecurity—Security from transmission of infectious diseases, parasites, and pests among livestock, poultry, wildlife, and zoo animals or, if the disease agent is zoonotic, among humans as well.

Buffer-Surveillance Zone—The zone immediately surrounding the Infected Zone.

Cleaning and disinfection (C&D)—Practices involving a combination of physical and chemical processes that kill or remove pathogenic microorganisms—a combination that is vital for the eradication of disease.

Confirmed positive case—An animal with a disease agent that has been isolated and identified in a USDA laboratory or other laboratory designated by the Secretary of Agriculture.

Contact Premises—A premises that has susceptible animals that have been exposed directly or indirectly to infected animals or contaminated people, products, or materials. A Contact Premises will be subjected to disease control measures (e.g., euthanasia, disposal, and cleaning and disinfection).

Control Area—The area, consisting of an Infected Zone and a Buffer-Surveillance Zone, established to ensure the rapid and effective containment of disease.

Depopulate—To euthanatize and dispose of animals.

Fomite—An inanimate object or material on which disease-producing agents may be conveyed (e.g., feces, bedding, or a harness).

Foreign Animal Disease Diagnostician (FADD)—A veterinarian who has taken the APHIS foreign animal disease training course at Plum Island and receives continuing education in the areas of foreign animal disease and animal health emergency management.

Free Zone—A zone in which the absence of the disease under consideration has been demonstrated by the meeting of requirements for free status specified in the OIE *International Animal Health Code.* Within the zone and at its borders, appropriate official veterinary control is applied for animals and animal products as well as for the transportation of animals and animal products.

Global Positioning System—A system utilizing satellite radio signals, accessed using a small handheld unit, to locate geographical points on Earth precisely.

Geographic Information System—A software application that facilitates the use of Global Positioning System-derived points and other information such as demographics, geopolitical boundaries, elevation, and rainfall to explore the relationships between various quantified variables.

Highly Contagious Disease—A disease that spreads rapidly from animal to animal as well as herd to herd or flock to flock. Transmission can occur via direct and indirect modes.

Incubation period—The longest period that elapses between the introduction of a pathogen into an animal and the occurrence of the first clinical signs of the disease (OIE).

Infected Premises—A premises on which a highly contagious disease or the agent causing it is presumed or confirmed to exist.

Infected Zone—The initial zone drawn beyond the perimeter of all presumptive or confirmed positive premises, including as many of the Contact Premises as is logistically or scientifically required. Initially, the Infected Zone is set at least 6.2 miles (10 kilometers) beyond the perimeters of the presumptive positive or confirmed positive premises.

Livestock—All farm-raised animals (Animal Health Protection Act, 2002).

Movement controls—A system of permits and recordkeeping that allows for the tracing of animals and proper biosecurity to be maintained during a disease outbreak. Examples of practices involving movement controls include maintaining a closed herd or flock, identifying all animals, keeping accurate records, and protecting animals from contact with wildlife.

Office International des Epizooties (OIE)—An international organization created by an International Agreement of January 25, 1924, signed by 28 countries. In May 2002, the OIE totaled 162 Member Countries. OIE standards are recognized by the World Trade Organization as a reference for international sanitary rules.

Poultry—Chickens, ducks, geese, swans, turkeys, pigeons, doves, pheasants, grouse, partridges, quail, guinea fowl, and pea fowl (9 Code of Federal Regulations 53).

Premises—A tract of land, including its buildings. Also, a building together with its grounds or other appurtenances.

Presumptive positive case—An animal that has clinical signs consistent with a foreign animal disease/emerging disease incident in addition to (a) a positive laboratory result and (b) additional epidemiologic information indicative of a foreign animal disease/emerging disease incident. (Also see "confirmed positive case.")

Secretary—The Secretary of Agriculture.

Sentinel animal—An animal—susceptible to a specific disease—that is placed on premises where a disease might exist to demonstrate the presence or absence of the disease.

State—Any of the States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Commonwealth of the Northern Mariana Islands, the Virgin Islands of the United States, or any territory or possession of the United States (Animal Health Protection Act, 2002).

Surveillance Zone—The zone established within and along the border of a Free Zone, separating the Free Zone from the Buffer-Surveillance Zone within a Control Area. Surveillance in the Surveillance Zone focuses on premises determined to be at the highest risk of infection.

Suspect case—An animal that has clinical signs consistent with an FAD/emerging disease incident.

Suspect Premises—A premises with susceptible animals that are under investigation for a report of clinical signs and with no apparent epidemiological link to an Infected or Contact Premises.

Vector-borne disease—A disease transmitted from animal to animal by an arthropod vector.

Zoonotic disease—An infectious disease that is common to humans and animals.

Appendix I
Sample Personnel
Orientation Factsheet

Biosecurity: DOs and DON'Ts

Before ENTERING a premises,

DO:

- Park your vehicle away from site production facilities and/or ensure that your vehicle's tires and wheel wells have been hosed so they are free of dirt and debris and/or that your vehicle has been taken through a pressure car wash.

- Designate a "clean" area in your vehicle—usually the passenger compartment. Keep it separate from the "dirty" area—usually the trunk or cargo area.

- Put on clean coveralls, boots, hat, gloves, and other apparel and use only clean equipment and supplies.

- Wash your hands with soap and water.

- Consult with the owner to identify an arbitrary line on the site demarcating a "clean" side and a "dirty" side.

DON'T:

- Enter a site's or vehicle's "clean" area unless you have disposed of or cleaned and disinfected all clothes, footwear, hats, gloves, equipment, supplies, and other sources of pathogen transmission.

- Attempt to disinfect a surface unless it first has been thoroughly cleaned.

- Drive your vehicle on premises any more than necessary. An on-site vehicle should be used for on-site transportation whenever possible.

(continued)

Biosecurity: DOs and DON'Ts
(continued)

Before LEAVING a premises,

DO:

- Use a brush and approved disinfectant to clean and disinfect all reusable equipment and clothing, including eyewear, thoroughly.
- Hose down vehicle tires and wheel wells so they are free of dirt and debris.
- Place disposable coveralls (turned "inside out"), boots, and other soiled items in a plastic garbage bag to be left with the owner or placed in the "dirty" area of your vehicle.
- Dispose of the disinfectant solution according to label instructions.
- Dispose of all plastic garbage bags containing soiled supplies in a manner that prevents exposure to other people or animals.
- Wash your hands with soap and water.
- Clean and/or launder all reusable clothing and equipment.
- Take a shower and shampoo your hair, clean under your fingernails, and clear your respiratory passages by blowing your nose, clearing your throat, expectorating into a sink with running water, and washing your hands with soap and water.

DON'T:

- Bring "dirty" paperwork into the clean area of your vehicle.
- Visit another susceptible site until 12 hours have passed.*

**Note:* The minimum waiting period of 12 hours applies only to official animal health emergency personnel who follow biosecurity procedures on their premises visits. For other premises visitors, the minimum waiting period is 5 days. Additional information is available in the NAHEMS "Cleaning and Disinfection" guidelines (in progress).

Appendix II

Incubation Periods for OIE List A Diseases

The table below presents the incubation period (i.e., the longest period that elapses between the introduction of the pathogen into the animal and the occurrence of the first clinical signs of the disease) for each OIE List A disease.

Disease	Incubation Period
African horse sickness in domestic horses	40 days
African swine fever	40 days
Bluetongue	100 days
Classical swine fever	10 days
Contagious bovine pleuropneumonia	6 months
Foot-and-mouth disease	14 days
Highly pathogenic avian influenza	21 days
Lumpy skin disease	28 days
Newcastle disease	21 days
Peste des petits ruminants	21 days
Rift Valley fever	30 days
Rinderpest	21 days
Sheep pox and goat pox	21 days
Swine vesicular disease	28 days
Vesicular stomatitis	21 days

Source: Office International des Epizooties (www.oie.int).

Appendix III
VS Form 1-27

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES
PERMIT FOR MOVEMENT OF ANIMALS
USE A SEPARATE FORM FOR EACH SPECIES

NO. 447692

5. STATE WHERE ISSUED

1. NAME & ADDRESS OF SHIPPER OR CONSIGNOR (INCLUDE ZIP CODE)

6. MOVEMENT TO BE: INTERSTATE ☐ INTRASTATE ☐

7. MOVEMENT FOR: QUARANTINE ☐ SLAUGHTER ☐

2. NAME & ADDRESS OF OWNER AT TIME CONDITION DIAGNOSED

8. DISEASE

9. STATUS OF ANIMALS

10. STATUS OF HERD OF ORIGIN

11. STATUS OF AREA OF ORIGIN

3. LOCATION OF PREMISES OF ORIGIN (COUNTY & STATE)

12. NO. ANIMALS IN THIS SHIPMENT

13. SPECIES (ONE ONLY)

14. TRUCK LICENSE NO. OR R R. CAR NO. & INITIALS

4. CONSIGNEE (NAME & ADDRESS, INCLUDE ZIP CODE)

15. SEAL NO.

16. VEHICLE REQUIRED TO BE CLEANED & DISINFECTED AT DESTINATION
YES ☐ NO ☐
IF YES, ITEMS 30 & 31 APPLICABLE

VALID ONLY FOR ABOVE DESTINATION

17. ANIMALS TO BE MOVED

EAR TAG NO. A	BREED B	SEX C	OTHER IDENT. D	EAR TAG NO. A	BREED B	SEX C	OTHER IDENT. D

I certify that I have inspected the animals described on this certificate and find them eligible to move in accordance with the requirements of State and Federal regulations.

18. SIGNATURE OF INSPECTOR	19. DATE ISSUED	20. TIME ISSUED	VOID AFTER 21. DATE	VOID AFTER 22. TIME

I understand that it is a violation of Federal law to move the animals identified herein out of the State in which they are located except in accordance with the provisions of applicable Federal Regulations. I also understand that such animals must comply with existing state laws, rules, and regulations governing movement of livestock and poultry.

I have arranged or will arrange for a copy of this certificate to accompany the interstate shipment of the above described animals.

23. SIGNATURE OF OWNER OR SHIPPER	24. TITLE OWNER ☐ SHIPPER ☐	25. DATE SIGNED

I certify that the animals described on this certificate were received and slaughtered / quarantined in accordance with the requirements of the State and Federal regulations on the date indicated in item 29.

26. SIGNATURE OF INSPECTOR	27. DATE SIGNED	28. NO. ANIMALS RECEIVED	29. DATE SLAUGHTERED / QUARANTINED

IF "YES" IN ITEM 16		30. DATE CLEANED & DISINFECTED	31. SIGNATURE OF INSPECTOR
	This vehicle has been cleaned and disinfected in accordance with Federal and State laws, rules, and regulations.		

VS FORM 1-27
JAN 1973

REPLACES VS FORM 1-27 (9/72), ANH FORM 1-27, ANH FORM 12-3, ANH FORM 1-30, & ANH FORM 13-12, WHICH ARE OBSOLETE

TO STATE OF ORIGIN (VS OFFICE)

VS Form 1-27
Permit for Movement of Animals

1. Complete name and mailing address. If animals are being reconsigned from a market, the name and address of the market will not appear here unless the market has purchased the animals and is, in fact, the owner/shipper.

2. Complete name and address of the owner at the time the physical condition was diagnosed. May be the same as item 1.

3. Self-explanatory.

4. This should be the complete name and address of a slaughter establishment or a quarantined feedlot. If the permit is for eggs, this will be the address of the breaking establishment.

5. Self-explanatory.

6. Self-explanatory.

7. Write in "other" if for eggs.

8. State disease suspected or diagnosed.

9. Exposed, suspect, infected.

10. Infected, exposed, suspect, etc. Use "N/A" if animals are a combined lot being reconsigned from a market.

11. Status of the geographic area as it applies to the disease involved, i.e., quarantine, free, etc.

12. If poultry products, write in the number of cases, boxes, crates, etc.

13. Self-explanatory.

14. Self-explanatory.

15. Record seal number used. Seals are not used on poultry trucks but are used on eggs whose movement is restricted because of *Salmonella enteritidis.*

16. Mark appropriate box. Check with your State Veterinarian or Area Veterinarian-in-Charge if in doubt.

17. a. Record all permanent identification present.
    b. Use breed codes.
    c. M - male, F - female, N - neuter
    d. If the animal has a current permit number, list the identification number from the original permit that authorized movement to the current location. List any nonpermanent identification (e.g., sale tags, back tags, bangle tags, etc.). Identify poultry by strain. Identify poultry products by type, (e.g., eggs, manure, etc.).

18. This is a legal document; do not forget to sign it.

19. Self-explanatory.

20. Self-explanatory.

21. Allow a reasonable amount of time for the movement to take place.

22. Allow a reasonable amount of time for the movement to take place.

23. If the owner or shipper is not available, the trucker may sign. *Never* allow a member of the market organization to sign unless the market is the buyer/shipper.

24. Mark appropriate box. If the trucker signed, write in "trucker."

25. Self-explanatory.

26, 27, 28, 29. Self-explanatory. For slaughter animals and poultry, if the inspector cannot certify as to receipt and slaughter from his or her personal knowledge, and if plant management satisfies the inspector that the animals/poultry have, in fact, been handled properly, the inspector can insert above item 28 "Plant Records" or "Plant Management" and then sign item 33 and date item 34.

For animals shipped to a quarantined feedlot, whenever the inspector cannot verify arrival through direct inspection and count, he or she can insert above item 28 "animals on hand," "quarantined feedlot records," etc., and then sign item 33 and date item 34.

For swine shipped from slaughter market to slaughter market, the inspector must verify arrival of all permitted swine by direct inspection and count.

30. Must be completed if the "yes" box in item 16 is marked.

31. Must be completed if the "yes" box in item 16 is marked.

After completion of the form, items 1–25, the white copy accompanies the shipment. If the shipment is for slaughter, the green copy is addressed to the Food Safety and Inspection Service or State Inspector at the designated slaughtering establishment. They will then complete the form and return it to the State of origin. If the shipment is poultry products, the green copy goes to the Agricultural Marketing Service Inspector located at the destination. The pink copy goes to the APHIS Veterinary Services area office in the State of designation. The yellow copy goes to the APHIS Veterinary Services area office in the State of origin. The issuing official keeps the goldenrod copy.